3203 PRINTER

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SERVICE

PREFACE

This Service Aid was designed to provide service personnel with a guide to analyzing print quality problems. Other information is provided to aid service personnel in problem resolution when the normal maintenance package is not effective.

Information contained in this Service Aid was designed for the 3203 Model 5 printer. You may also find it helpful in solving print quality problems with other models of the 3203 printer.

It is important customers understand their responsibility for maintenance and adjustments on the 3203 printer. Customers should become familiar with the contents of the following documentation: 3203 Model 5 Component Description Manual and Operator's Guide (GA33-1529) and 3203 Model 5 Operator Training Guide (G229-2305).

3203 Service Planning
JANUARY, 1984

The information contained in this Service Aid is a reprint of a World Trade Print Quality Service Aid.

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1.0 PRINT QUALITY ADJUSTMENTS

This flow chart should be used when you feel you have a general print quality problem. It is not intended to replace the MLM/MAP adjustments for obvious print quality problems.

The service checks are listed in exact sequence. Follow the flow chart 100% and make sure each item is correct before proceeding to the next step, if not, you will fail at the end.

```
                                                                    PAGE #
                +--------+
                :        :          +-------------------------------+
                :  OCR?  :--- YES ----: Check OCR pre-req ....1.24.0 :
                :        :          +-------------------------------+
                +--------+                         :
                    :                              :
                    :  NO                          :
                    :                              :
+-------------------------------------------------------------------------+
:  Clean the 1416.......................................  1.0.0    :
:  Check train cartridge................................  1.1.0    :
:  Clean vacuum nozzle..................................  1.2.0    :
:  Replace plastic shield...............................  1.2.0    :
:  Check vacuum O-ring and dust bag.....................  1.3.0    :
:  Check ribbon condition...............................  1.4.0    :
:  Check operator settings..............................  1.5.0    :
:  Clean paper path.....................................  1.6.0    :
:  Check CE stud on swing gate..........................  1.7.0    :
:  Check swing gate roller..............................  1.8.0    :
:  Check forms compressors..............................  1.9.0    :
:  Check paper brakes...................................  1.10.0   :
:  Check plastic shield is parallel to train............  1.11.0   :
:  Check scale bar to 1416..............................  1.12.0   :
:  Check paper drag.....................................  1.13.0   :
+-------------------------------------------------------------------------+
                     :
                   +---+
                   : A :
                    \ /
```

1.0 PRINT QUALITY ADJ. (cont.)

```
                               +---+
                               ¦ A ¦
                                \ /
                                 ¦
+------------------------------------------------------------------------+
¦  ** Take print sample with "H" pattern **                              ¦
¦  Run diagnostic routine 6B................................. 2.2.0      ¦
¦  Adjust horizontal registration............................ 1.14.0     ¦
+------------------------------------------------------------------------+
                                 ¦
                           +-----------+
                           ¦  Do you   ¦                +-------------+
                           ¦still have ¦---- NO ----¦ End of job ¦
                           ¦a quality  ¦                +-------------+
                           ¦ problem?  ¦
                           +-----------+
                                 ¦
                                 ¦  YES
                                 ¦
+------------------------------------------------------------------------+
¦  Check train drive belt tension............................ 1.15.0     ¦
¦  Check hammer unit position................................ 1.16.0     ¦
¦  Check hammer unit retainer plate condition................ 1.17.0     ¦
¦  Check residuals........................................... 1.18.0     ¦
¦  Check hammer unit is parallel to swing gate (PAB)......... 1.19.0     ¦
¦  Check impression control bar to print position 1.......... 1.20.0     ¦
¦  Check impression control bar is parallel to PAB........... 1.21.0     ¦
¦  Check carriage timing belt tension........................ 1.22.0     ¦
¦  Check tractor torque...................................... 1.22.0     ¦
+------------------------------------------------------------------------+
                                 ¦
+------------------------------------------------------------------------+
¦  ** Flight time adjustment **                                          ¦
¦  Set up and run diagnostic routine 81...................... 2.3.0      ¦
¦  Run diagnostic routine 82................................. 2.4.0      ¦
+------------------------------------------------------------------------+
                                 ¦
                               +---+
                               ¦ B ¦
                                \ /
```

1.0 PRINT QUALITY ADJ. (cont.)

```
                         +---+
                         ¦ B ¦
                          \ /
                           ¦
+-----------------------------------------------------------------------+
¦  Run diagnostic routine 6B ("H" pattern)................... 2.2.0 ¦
+-----------------------------------------------------------------------+
                           ¦
                     +----------+
                     ¦  Do any  ¦                    +-----------+
                     ¦ positions¦---- NO ----¦ End of job ¦
                     ¦ look out ¦                    +-----------+
                     ¦ of time? ¦
                     +----------+
                          ¦
                          ¦ YES
                          ¦
               +------------------------+
               ¦  Adjust these positions  ¦
               ¦ visually with "H" pattern ¦
               +------------------------+
                          ¦
                +---------------------+
                ¦ Do you have a problem  ¦                +-----------+
                ¦ adjusting any of these ¦---- NO ----¦ End of job ¦
                ¦       positions?       ¦                +-----------+
                +---------------------+
                          ¦
                          ¦ YES
                          ¦
+-----------------------------------------------------------------------+
¦  Check condition of hammer block in failing position....... 1.23.0 ¦
¦  Check condition of push rod asm in failing position....... 1.23.0 ¦
+-----------------------------------------------------------------------+
```

1.0.0 CLEANING THE 1416

The following is written in the 3203 Component Description and Operator's Guide (GA33-1529):

(quote)
Smudged characters and extraneous ink are sometimes signs of a dirty train. Run the train clean program with the approved cleaning paper (IBM part number 451529). If the condition continues, the train must be cleaned by hand: this is a task for qualified personnel and must be performed by an IBM service representative only.

To clean the train:

1. Remove paper and ribbon.
2. Insert cleaning paper (IBM part 451529 or equivalent).
3. Set forms thickness control to 2.
4. Set print density knob to A. (unquote)
5. Run appropriate cleaning program (see MLM 22-030).

The print train cleaning program is available on punched cards for customers who do not have the train cleaning program incorporated in their present level of software. The installation of the train cleaning program is a customer responsibility.

For:	order Card Deck P/N:
DOS/VS	4699367
OS/VS1	4699368
OS/VS2	4699368
VM/370	4699369

REMEMBER: The customer is responsible to periodically clean the train.

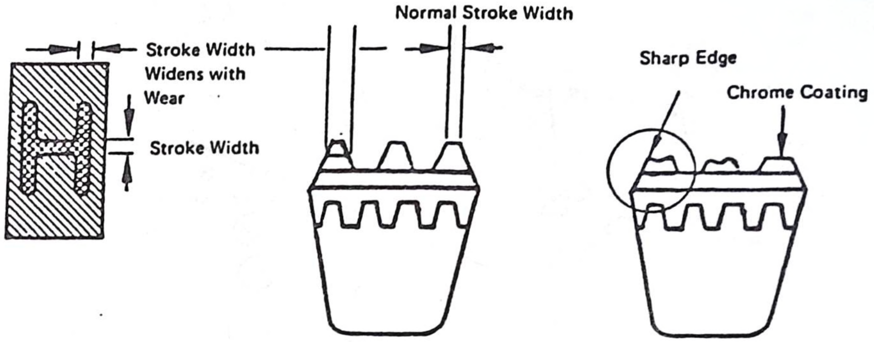
NOTE: For the CE it is possible to run routine 6C (see MLM 23-060).

NOTE: CEs should provide cleaning paper P/N 451529 to the customer.

1.1.0 CHECKING TRAIN CARTRIDGE

1. Slug Surface Wear –
Check the slugs for worn character surface and sharp edges.

If the hardened surface of the typeface has worn through, change the slugs. Observe that chromed slugs may have very sharp edges that will damage the ribbon.

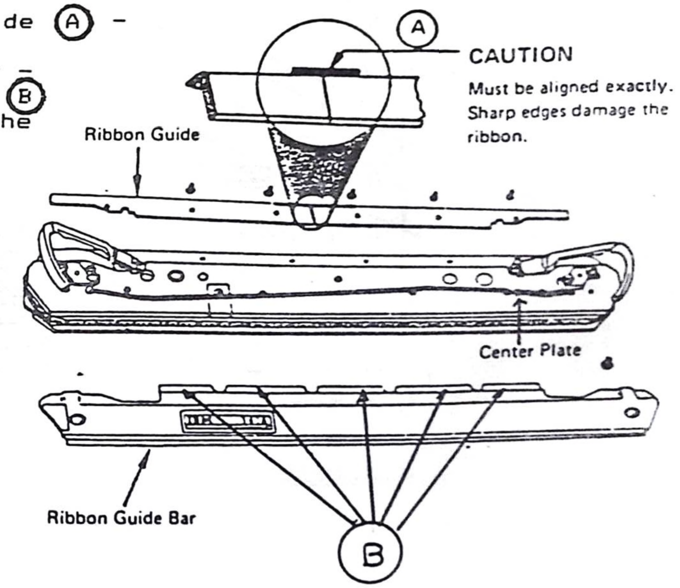


2. Slug to Slug Clearance –
See MLM 8-020 for service check and MLM 8-030 for adjustment.

3. Check Ribbon Guide Ⓐ –

4. Ribbon Guide Bar –
Make sure flaps Ⓑ are flush with the surface on the center plate.

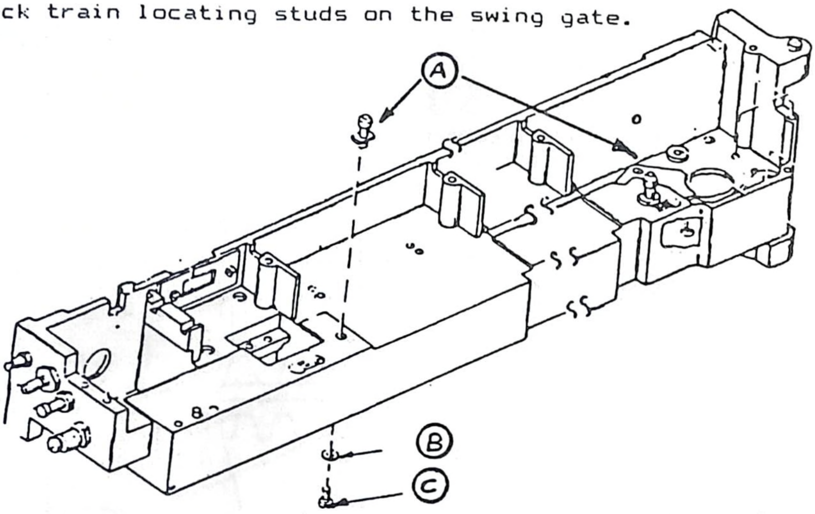
The last two adjustments are essential for ribbon life.



CAUTION
Must be aligned exactly. Sharp edges damage the ribbon.

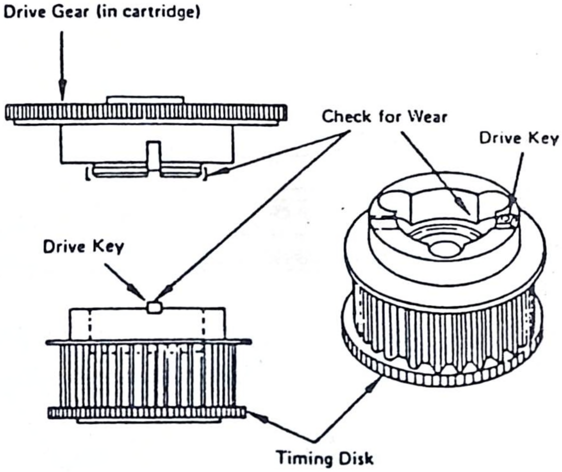
1.1.0 CHECKING TRAIN CARTRIDGE (cont.)

5. Studs -
Check train locating studs on the swing gate.



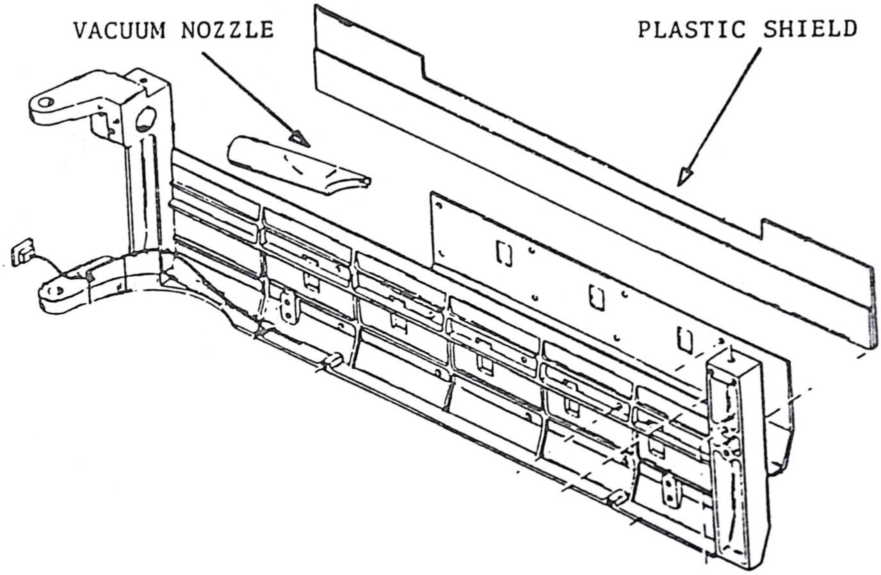
Make sure there is a spring washer between Ⓑ and Ⓒ . If not, replace Ⓑ with P/N 2631574 and add spring washer P/N 1090873.

6. Gear Wear -
Check drive gear on cartridge and timing disk drive key for wear.

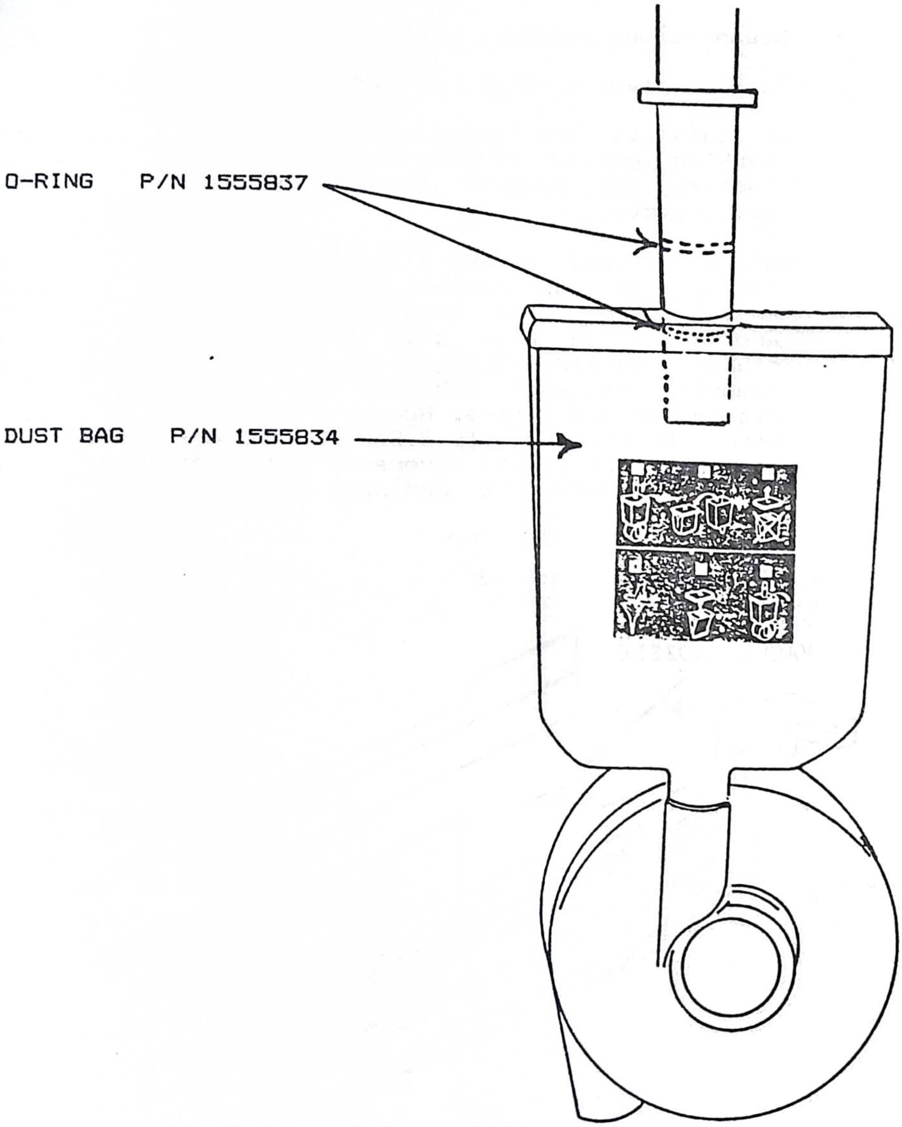


1.2.0 RIBBON SHIELD ASM.

- Clean vacuum nozzle.
- Replace plastic shield if worn.
- If this is the first time you are checking your machine guided by this book, it is recommended you replace the plastic shield in order to get good adjustments.
- Before fitting a new plastic shield, make sure the surface on the ribbon shield is absolutely clean and free of glue particles. Some plastic shields are glued on with glue tape which sticks to the ribbon shield. SLOWLY peel off the plastic shield removing as much adhesive as possible from the ribbon shield frame. Remove the remaining adhesive with IBM cleaning fluid P/N 450608 . A build up of glue particles will adversely affect print quality.
  Refer to MLM page 10-080 for adjustment.



1.3.0 VACUUM CLEANER



Check for presence of O-Rings. If they are missing, the vacuum nozzle in the swing gate will be clogged and the 1416 will become dirty sooner.

1.4.0 RIBBON CONDITION

The following information is taken from the Operators Guide (GA33-1529).

NOTE: The high energy of the 3203-5 print hammers improves the print quality of copies when multiple-part forms are used, but it can also cause the ribbon to wear out before the ink is used up. To lengthen the life of the ribbon, use the following procedure. After installing a new ribbon, set the print density knob to "D". When the print density is too light, turn the print density knob one half-step or more towards "A" until the quality becomes satisfactory. Do not turn the knob further than necessary for satisfactory density. For example, a setting of "C" would be typical for most single-part forms.

Evaluate the print quality periodically. If a decline is detected after several hundred thousand lines, turn the print density knob another half-step towards "A". Repeat the procedure as often as necessary.

Ribbon fabric life is reduced (independent of ink content) by:

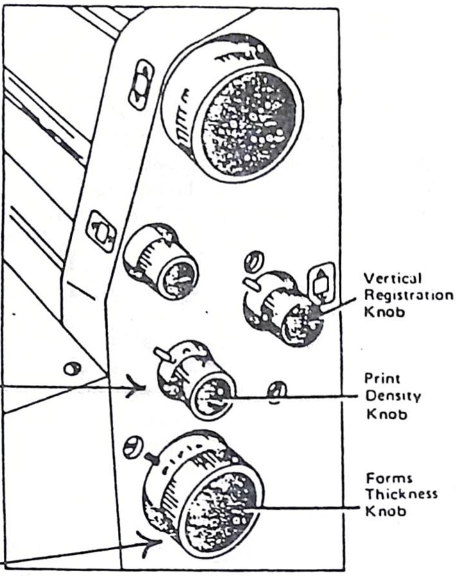
1. Initial runs of a new type face (the first few months after installing a new cartridge).
2. Use of 2.01 mm (0.079 inch) type or text which has a relatively small contact area and therefore increases ribbon stress.
3. By high usage of small-area characters (for example, on job delimiter pages), such as period, comma, hyphen, slash, and colon.

If a ribbon is used beyond its useful fabric life, print quality may be adversely affected, data may be lost, and the machine may be damaged. Use of a ribbon beyond its useful life is indicated by:

- Small holes appearing in the ribbon.
- Frayed streaks on the fabric.
- Foldover of the ribbon.

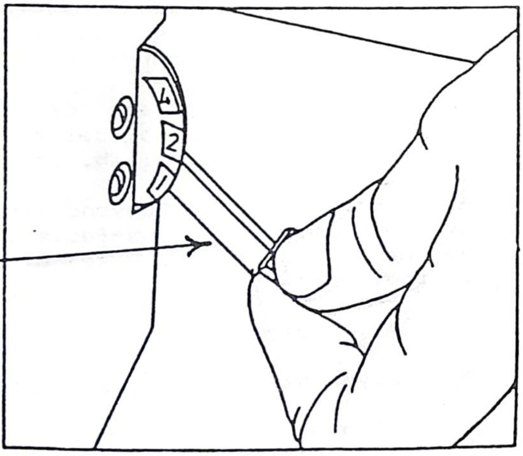
When any of these conditions occur, replace the ribbon.

1.5.0 OPERATOR SETTINGS



CAN BE SET BETWEEN A AND D DEPENDING ON RIBBON CONDITION

CAN BE SET BETWEEN 1 AND 6 DEPENDING ON NUMBER OF FORMS



CAN BE SET BETWEEN 1 AND 4 DEPENDING ON NUMBER OF FORMS

PAPER BRAKE ADJUSTMENT

Make the customer aware of what is written in the 3203-5 Component Description and Users Guide (GA33-1529).

1.6.0 GENERAL CLEANING

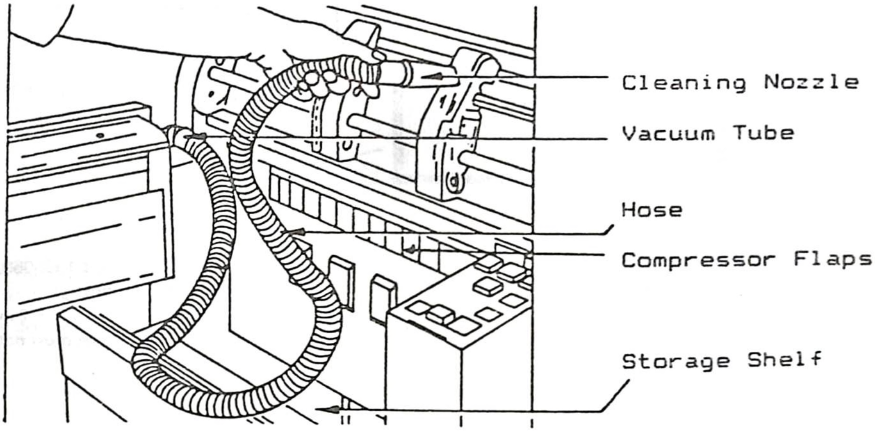
The following is written in the 3203-5 Operators Guide (GA33-1529).

(quote)
Vacuum clean the print area at the beginning of every shift as follows:

1. Raise the printer cover. Unlatch the swing gate and swing it open. Remove the manual vacuum cleaner hose from its storage shelf below the swing gate.

2. Attach the hose to the vacuum tube at the left of the ribbon shield (Figure 37). The vacuum cleaner starts automatically.

3. Vacuum all lint and dirt from the print area.



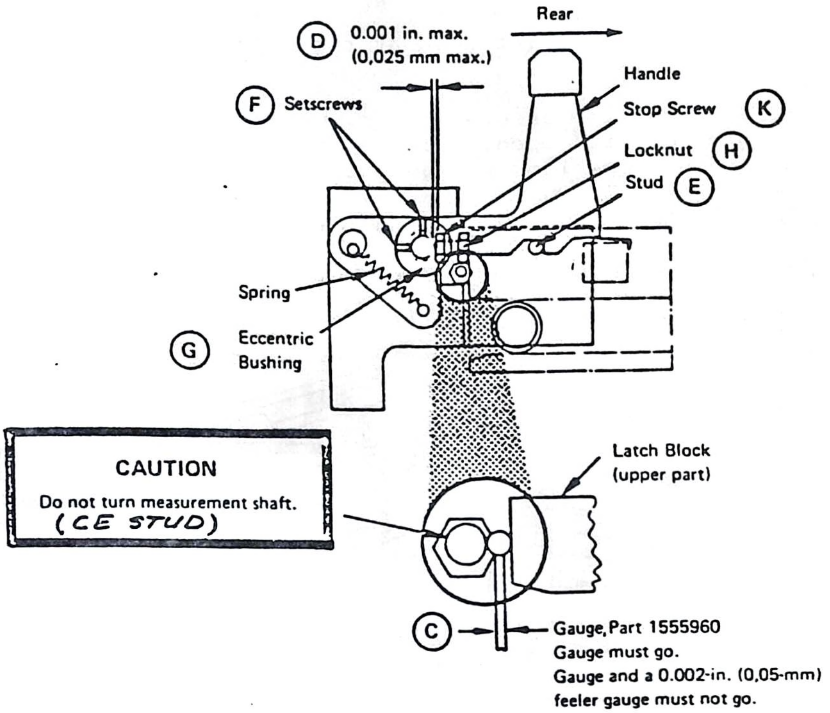
4. Disconnect the vacuum cleaner hose and stow it in its storage place.

Regularly empty the waste container (Figure 38) which is located under the left side cover of the printer. To replace the filter bag, follow the steps shown on the label on the waste container. (unquote)

NOTE: The above is a customer responsibility.

WARNING: Do not use spray solvents to clean the hammer surface or compressor flaps as the oil impregnation in the hammer blocks will disappear.

1.7.0 BASIC CHECK



CAUTION

Do not turn measurement shaft.
(CE STUD)

Gauge must go.
Gauge and a 0.002-in. (0,05-mm) feeler gauge must not go.

This is to verify the swing gate is parallel to the base frame.

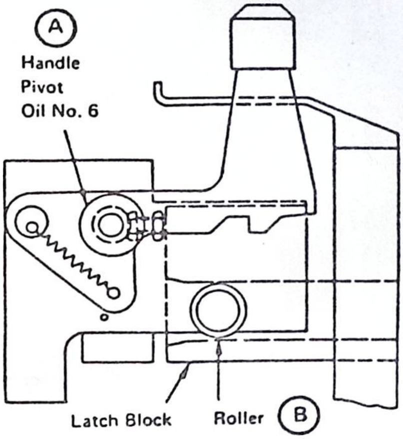
If distance C is not correct, the whole machine might be maladjusted.

For adjustment see MLM 10-030

1.8.0 SWING GATE HANDLE AND ROLLER

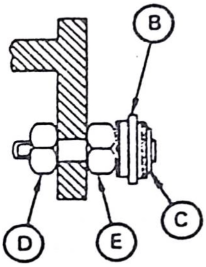
Service Check

1. Check that the handle does not bind on the pivot.
   - If the handle binds, lubricate it as shown at point Ⓐ.
2. Check that the roller Ⓑ just touches the guide surface of the latch block.
3. Check that roller Ⓑ rotates when it enters the latch block.
   - If roller does not rotate, lubricate as follows:
     a. Remove clip Ⓒ and take out the plastic washers and roller.
     b. Lubricate stud, roller, and washers with IBM No. 23 grease.
     c. Install parts as shown.

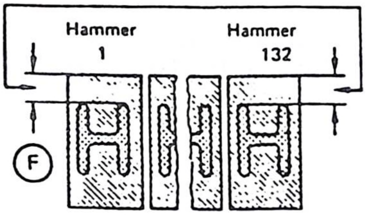


Replacement and Adjustment of Roller

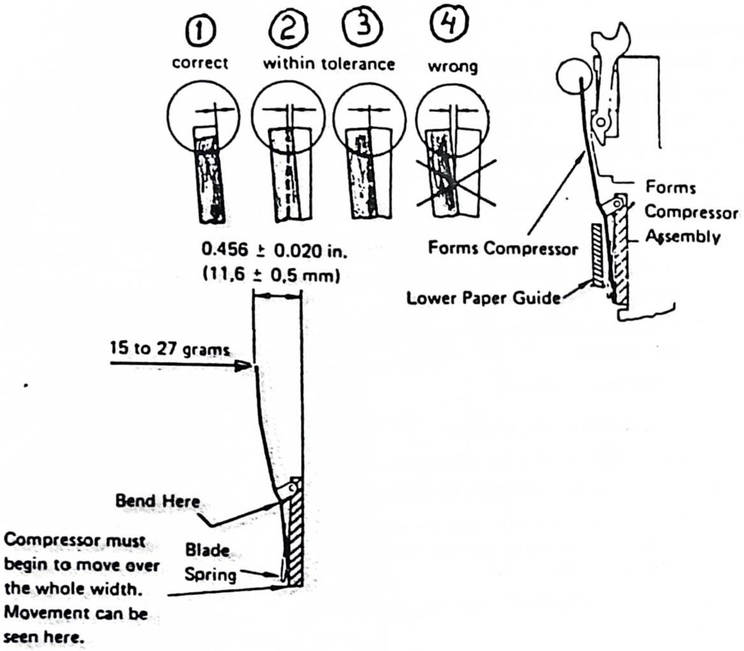
1. Remove nut Ⓓ and take out roller.
2. Install the new roller and tighten by hand.
3. Turn the eccentric shaft Ⓔ, until the roller just touches the guide surface of the latch block when closing the swing gate.
4. Check horizontal alignment of hammer unit and swing gate:
   a. Clean the hammer faces.
   b. Install a two-part form with the second sheet removed.
   c. Print one line of Hs; the hammers strike the carbon transferring Hs onto the hammer faces Ⓕ.
   d. If the Hs are not positioned as shown, repeat step 3.



Distance must be equal.



1.9.0 FORMS COMPRESSORS



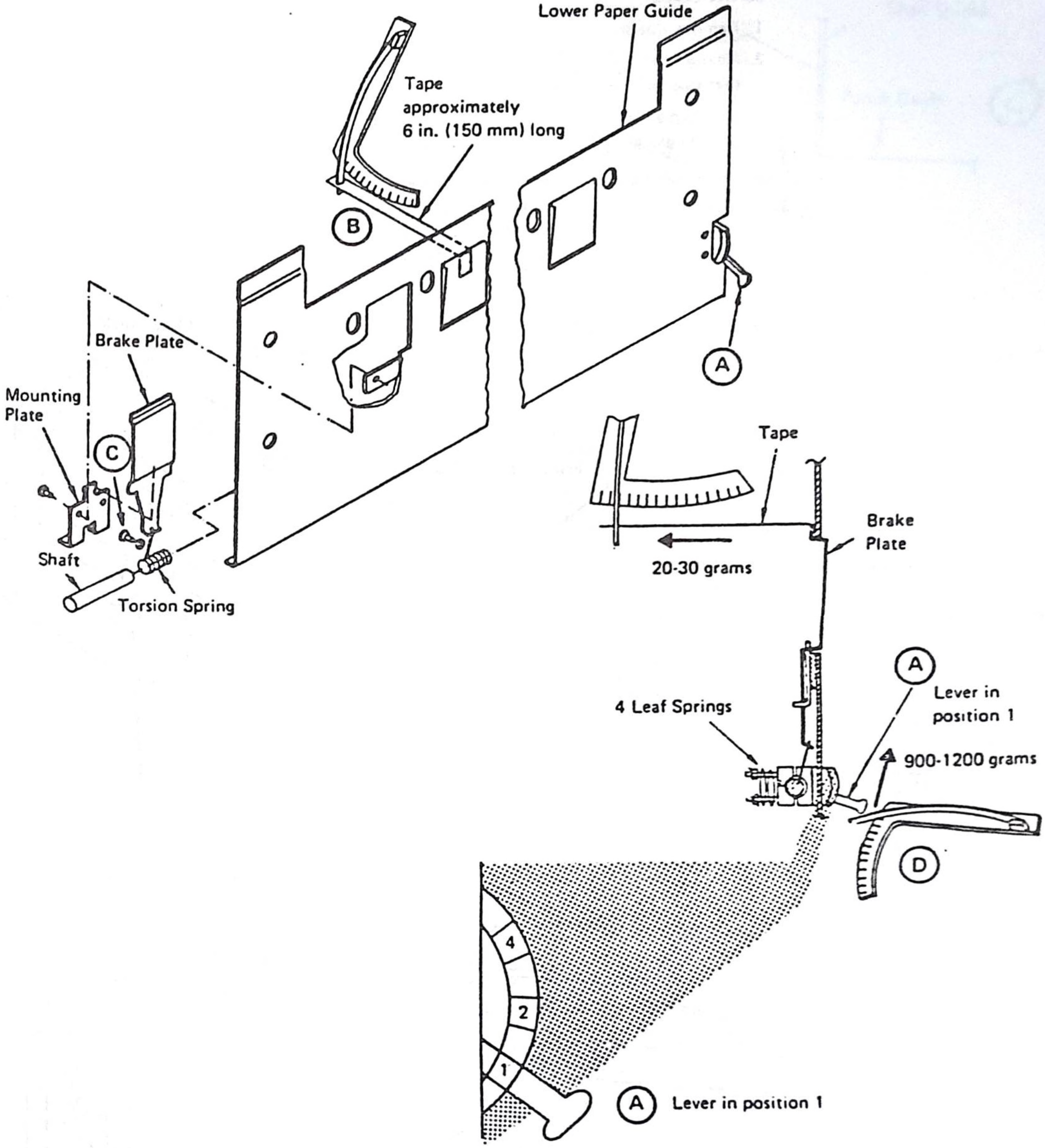
Forms compressors have two functions:

- Keep paper stable during printing.
- Take out air between copies when multiple forms are used.

If the compressors are not aligned you may encounter various print quality problems like slur and print density variations.

When looking from the side you should have compressors aligned like pictures ① ② ③ . Picture ④ shows forms compressors overlap each other.

1.10.0 PAPER BRAKES



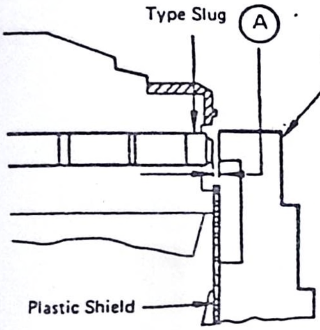
The important thing with this adjustment is all brake plates have the same tension. If not, you will have paper feeding problems and print line distance variations.

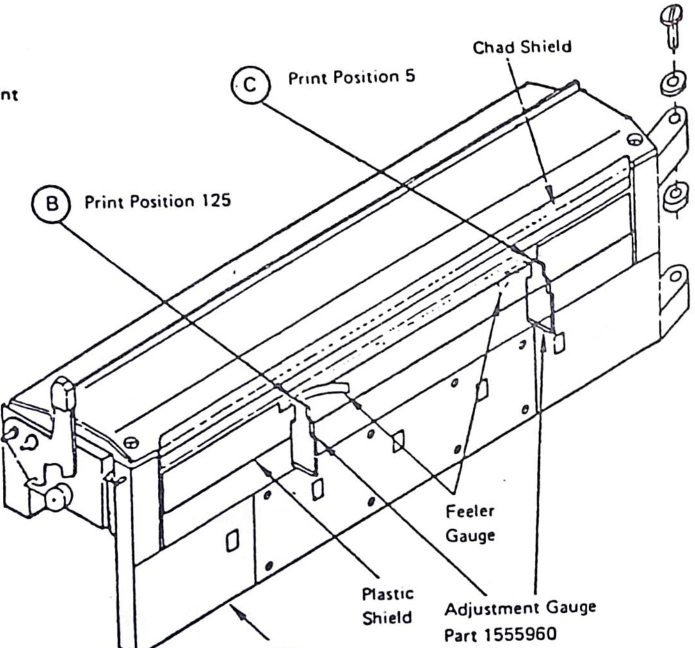
For adjustment see MLM 10-040.

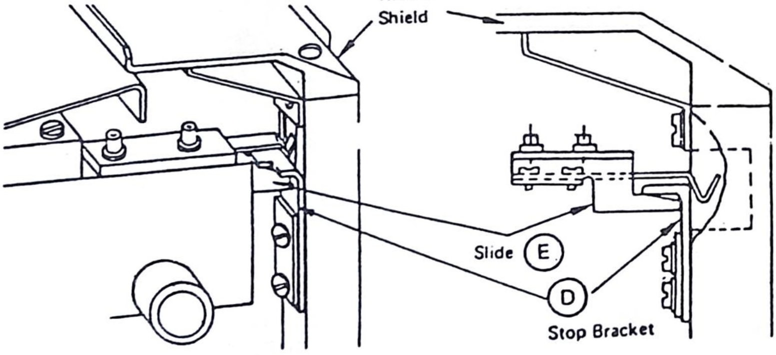
1.11.0 PARALLELISM OF PLASTIC SHIELD TO TRAIN

Service Check

1. Remove ribbon.
2. Measure gap Ⓐ at Ⓑ and Ⓒ as shown. Make sure that stop bracket Ⓓ rests against slide Ⓔ .
   - If gap at Ⓑ is equal or 0.010 in. (0,25 mm) smaller than gap at Ⓒ , the adjustment is correct.
3. Open the ribbon shield so that the gap between the stop bracket and slide is 0.04 to 0.08 in. (1 to 2 mm). Release the ribbon shield and check that the ribbon shield moves back by latch spring force against the slide.

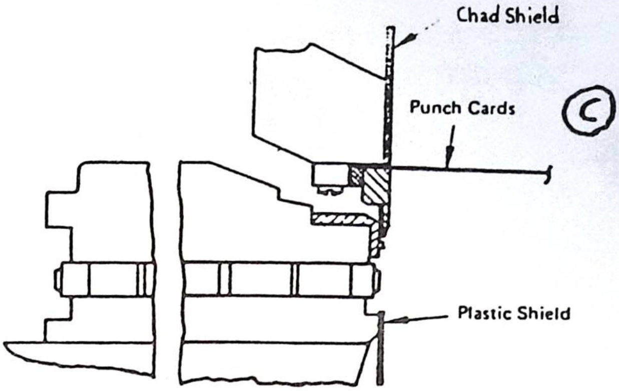


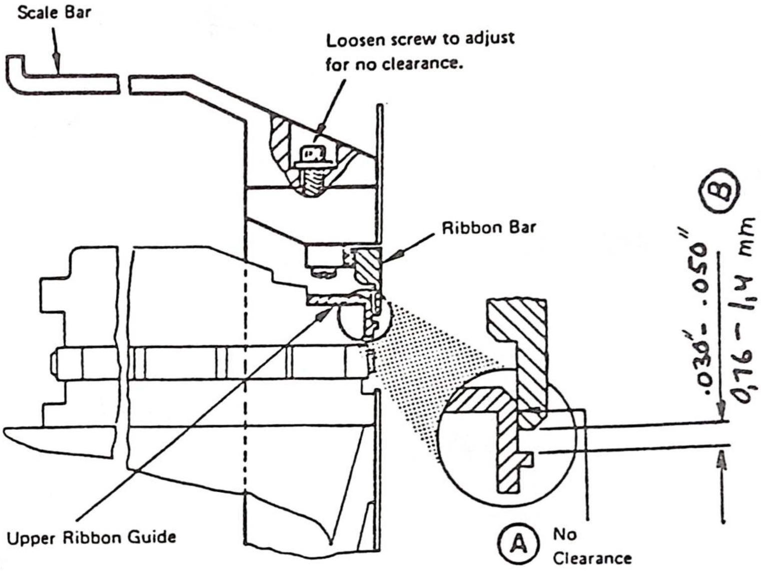




For adjustment see MLM 10-050.

1.12.0 RIBBON SHIELD ADJUSTMENT TO 1416





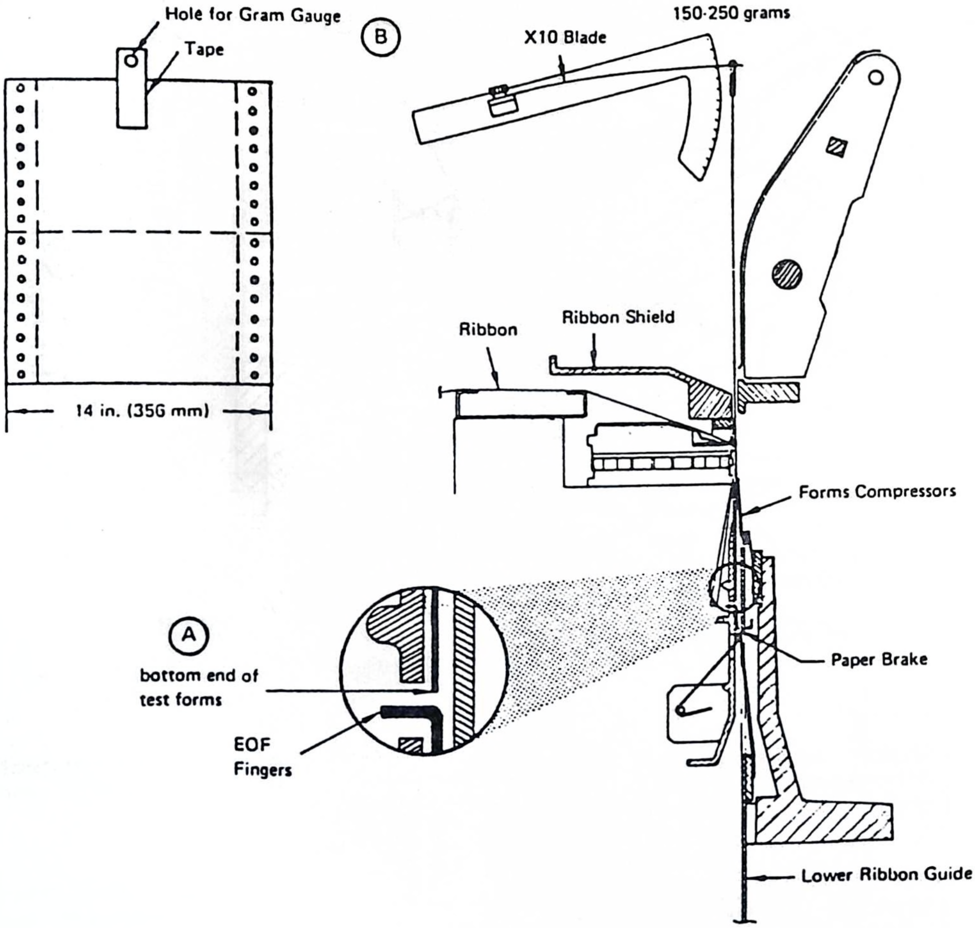
Check adjustments Ⓐ Ⓑ and Ⓒ . All must be correct otherwise you will have a generally bad print quality and short ribbon life.

NOTE: Close the ribbon shield to the swing gate and check that a single copy paper piece moves freely between the ribbon bar and the upper ribbon guide over the whole ribbon width.

For adjustment see MLM 10-060.

1.13.0 QUICK CHECK OF FRONT PAPER PATH

1. Clean ribbon shield and forms compressors with cleaning fluid, part 450608.
2. Set paper thickness knob to 6.
3. Set impression control to D.
4. Prepare a four-part form as shown Ⓑ.
5. Insert this form between forms compressors and swing gate as shown Ⓐ and check pullout force.
   Be sure the forms are above the EOF fingers. If incorrect, perform service check for forms compressors, (10-030) and service check for ribbon shield (10-050).



1.14.0 HORIZONTAL REGISTRATION

Cutoff over the Whole Line

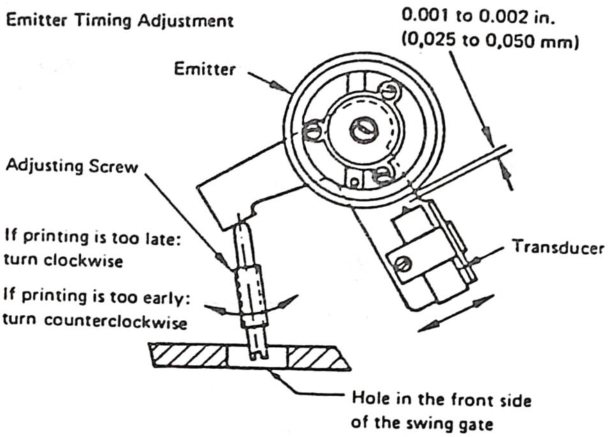
Cutoff Left (Printing too late)

HHHHHHHHHHHH

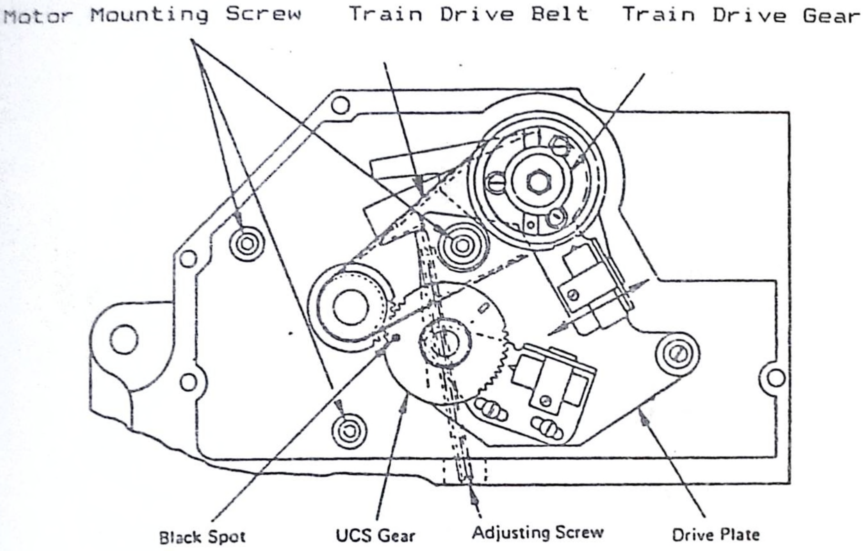
Cutoff Right (Printing too early)

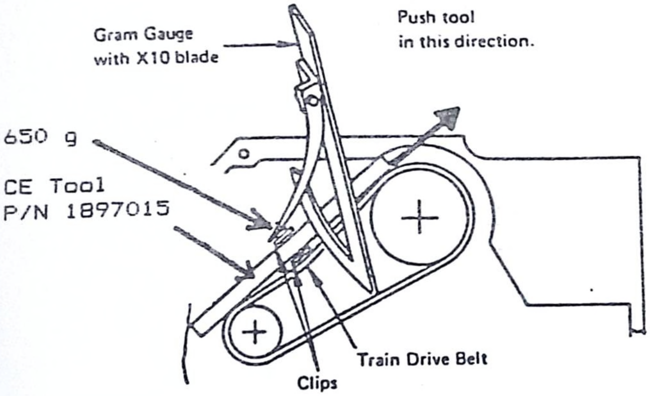
HHHHHHHHHHHH

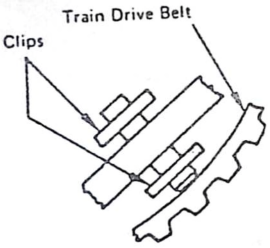
Emitter Timing Adjustment


0.001 to 0.002 in.
(0,025 to 0,050 mm)
Emitter
Adjusting Screw
If printing is too late: turn clockwise
If printing is too early: turn counterclockwise
Transducer
Hole in the front side of the swing gate

1.15.0 TRAIN DRIVE BELT



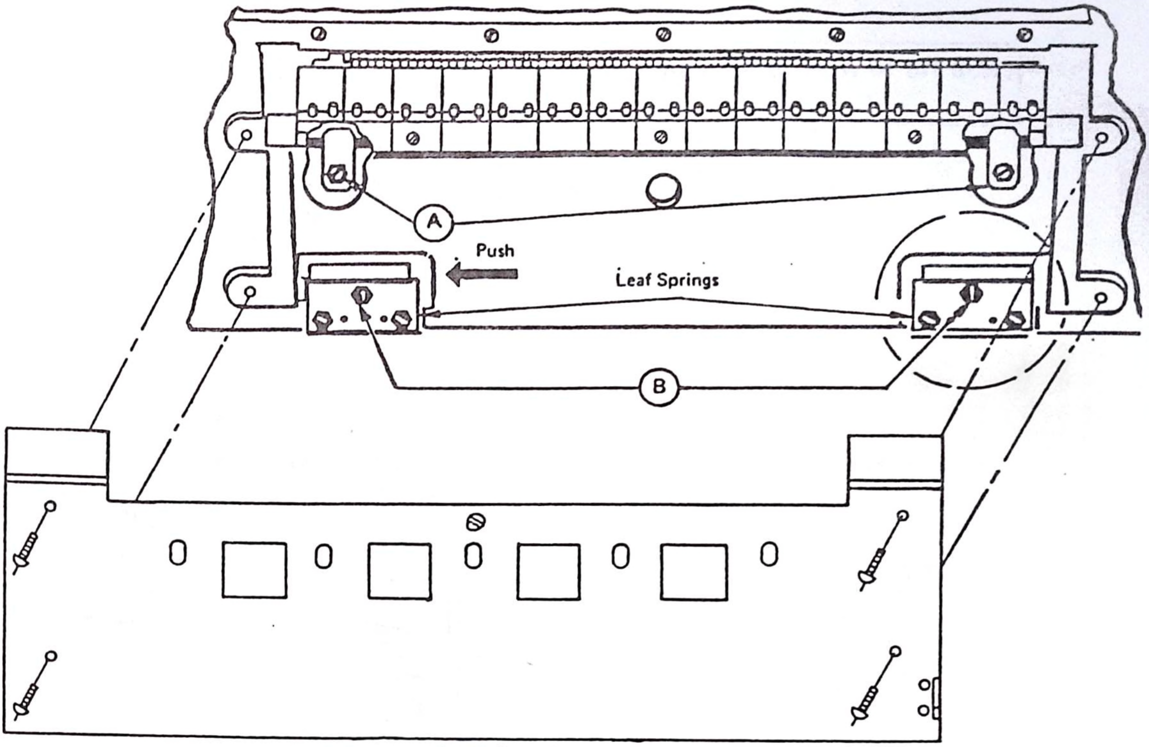




- Clean the area.
- Check the drive belt for wear.
- Check belt tension.

Worn belts or too little tension will cause wavy printing.

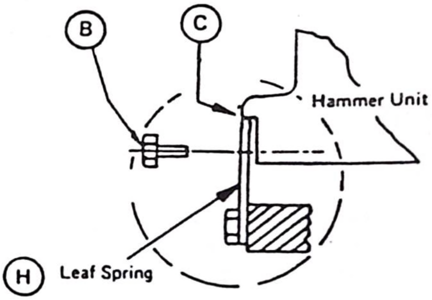
1.16.0 HAMMER UNIT POSITIONING



Lower Paper Guide

Check that the hammer unit is correctly installed by loosening screw Ⓑ and push hammer unit to the left to its stop and tighten screw Ⓑ . Check for no clearance Ⓒ between leaf spring Ⓗ and hammer unit.

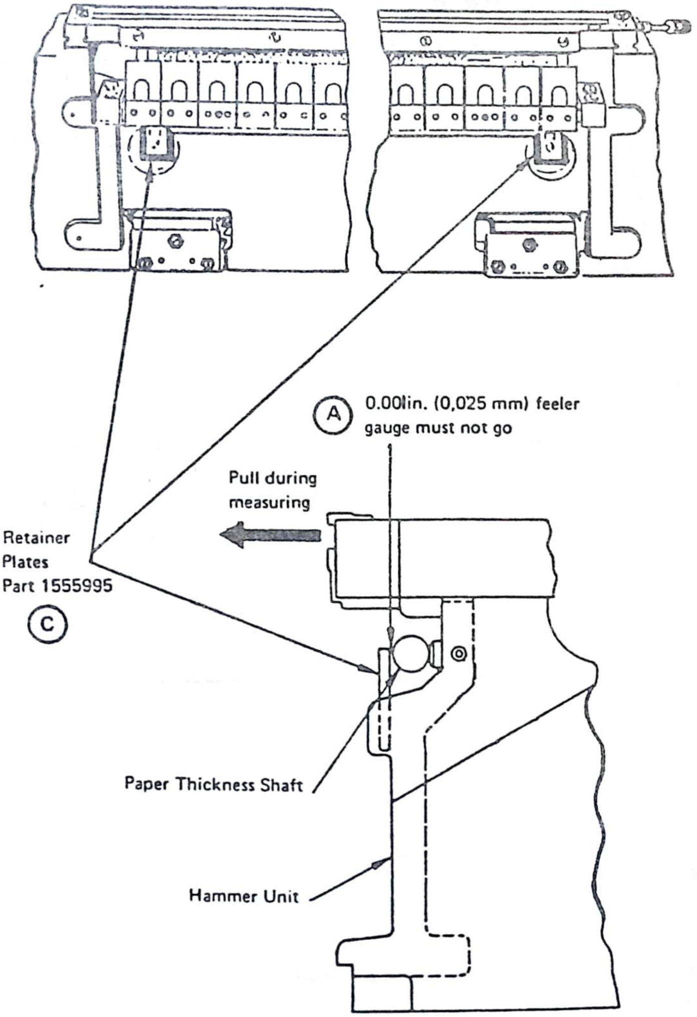
If Ⓒ is incorrect, the hammer may not hit the whole character on the 1416.



1.17.0 PAPER THICKNESS SHAFT TO RETAINER PLATES GAP

Service Check

1. Remove the lower paper guide and forms compressors.
2. Check gap on both retainer plates as shown Ⓐ :

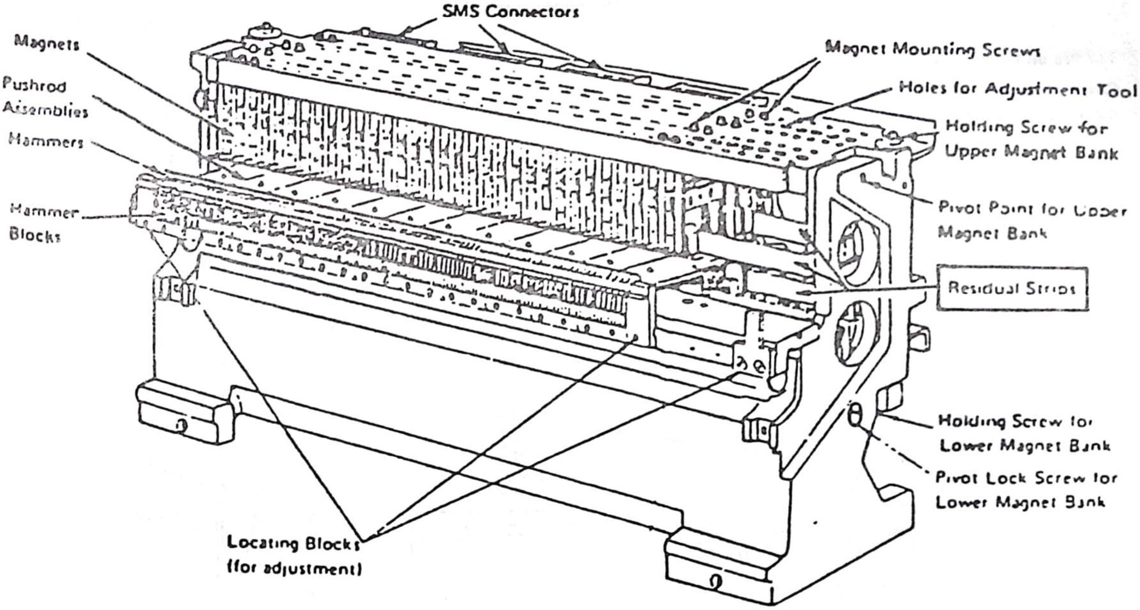

Ⓐ 0.001in. (0,025 mm) feeler gauge must not go
Pull during measuring
Retainer Plates Part 1555995
Ⓒ
Paper Thickness Shaft
Hammer Unit

If the gap between paper thickness shaft and retainer plates is incorrect you will have an unstable hammer unit with print density variation.

See MLM page 10-260 for adjustment.

1.18.0 RESIDUAL STRIP REPLACEMENT

1. Place the hammer unit in its service position (6-220)
2. Clean the hammer unit particulary between hammer coils of all dust. and paper parts.
3. Remove the residual strips. Check the residuals for holes.
4. Replace any hammer magnet assembly cutting holes in the residual.
5. Install new residuals.
6. Perform hammer unit repositioning.


SMS Connectors
Magnets
Pushrod Assemblies
Hammers
Hammer Blocks
Magnet Mounting Screws
Holes for Adjustment Tool
Holding Screw for Upper Magnet Bank
Pivot Point for Upper Magnet Bank
Residual Strips
Holding Screw for Lower Magnet Bank
Pivot Lock Screw for Lower Magnet Bank
Locating Blocks (for adjustment)

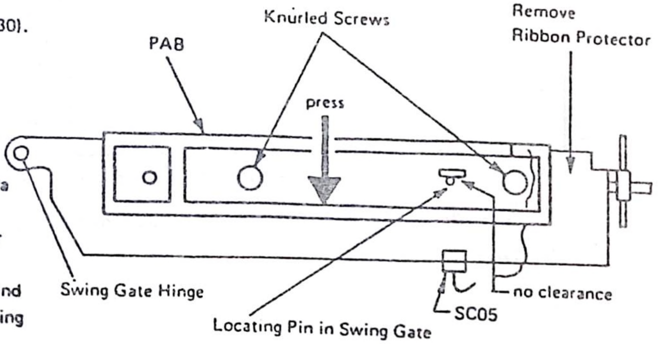
If residuals are worn you may get slur on your print out or missing print positions.

1.19.0 PARALLELISM OF PAB TO HAMMER UNIT

Service Check

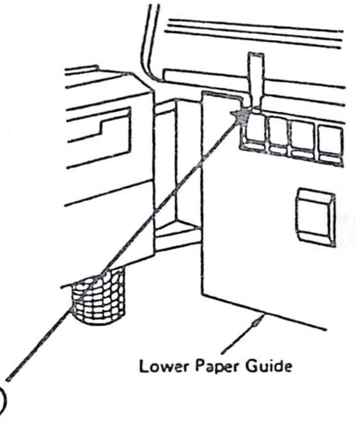
Parallelism of PAB to Hammer Unit

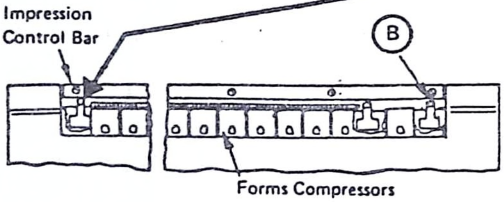
1. Check Parallelism Swing Gate to Base Frame (10-030).
2. Install PAB (10-310).
3. Remove impression control bar (10-290).
4. Turn paper thickness knob to position 6.
5. Insert adjustment gauge between PAB and locating block as shown Ⓐ.
6. Turn paper thickness knob toward 1 until you feel a light drag on the gauge.
7. In this position, note the scale reading on the paper thickness knob.
8. Turn the paper thickness knob back to position 6 and make the same measurement at the rightmost locating block Ⓑ.
9. If the difference of both measurements exceeds one scale division Ⓒ, perform Parallelism of PAB to Hammer Unit Adjustment (10-280).
10. Install impression control bar and adjust it (10-290).

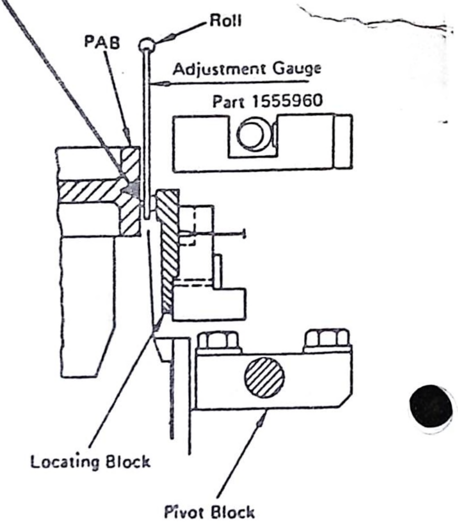


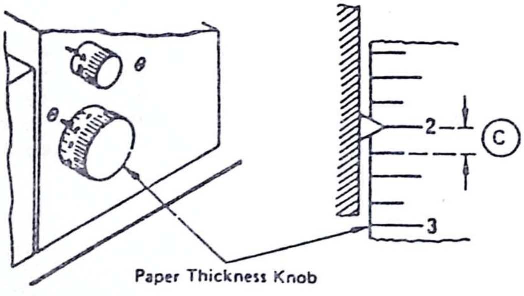
Torque on Paper Thickness Knob

Check that the paper thickness knob is so tight that machine vibrations cannot turn the knob.

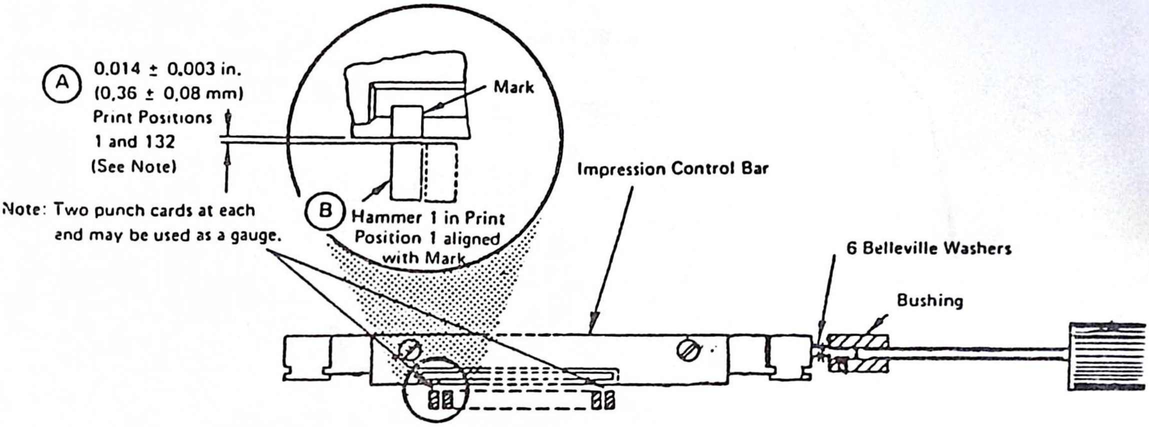


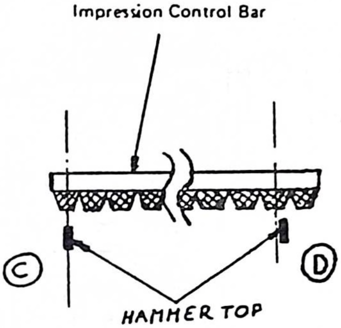






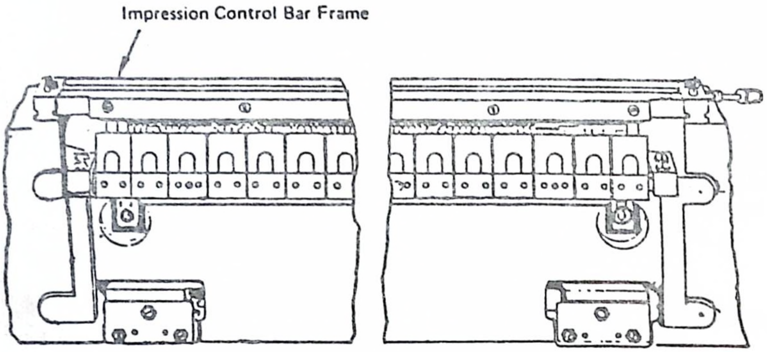
1.20.0 IMPRESSION CONTROL BAR ADJUSTMENT TO PRINT POS. 1

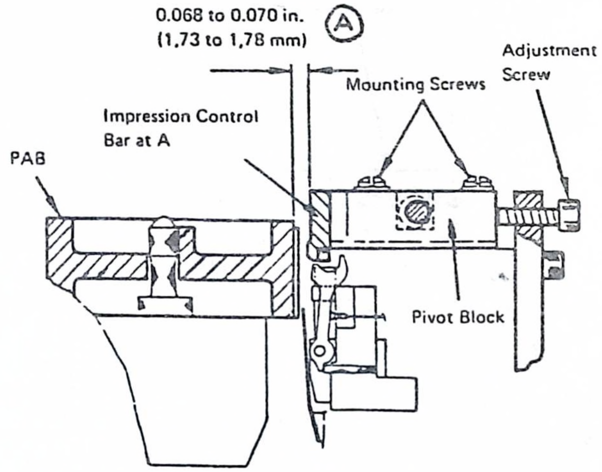




If the impression control bar is not positioned as shown in A and B the hammer will hit the rubber damper incorrectly (see D). This causes the rubber to wear and will cause variable print density problems.

1.21.0 IMPRESSION CONTROL BAR

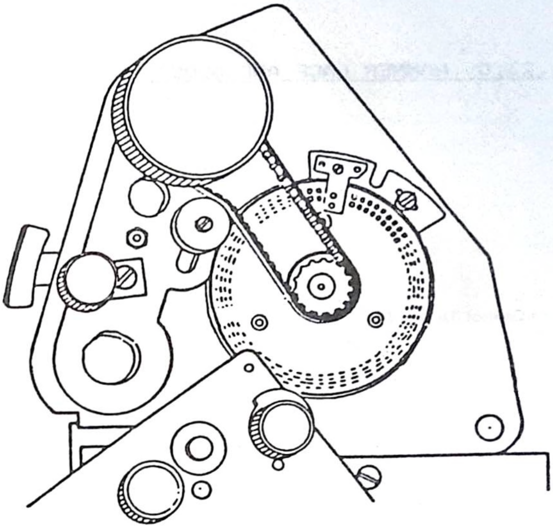




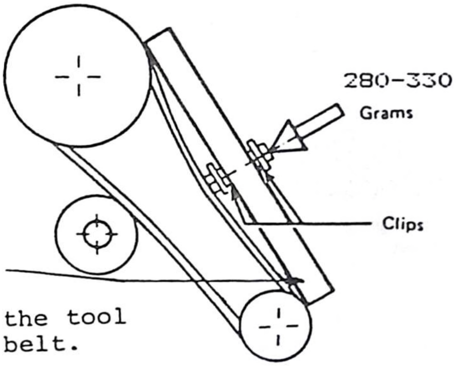
The distance A must be contained over the full length to avoid print density variation problems.

1.22.0 CARRIAGE BELT AND TRACTOR TORQUE

Check belt for wear.
A worn belt will give vertical registration problems.



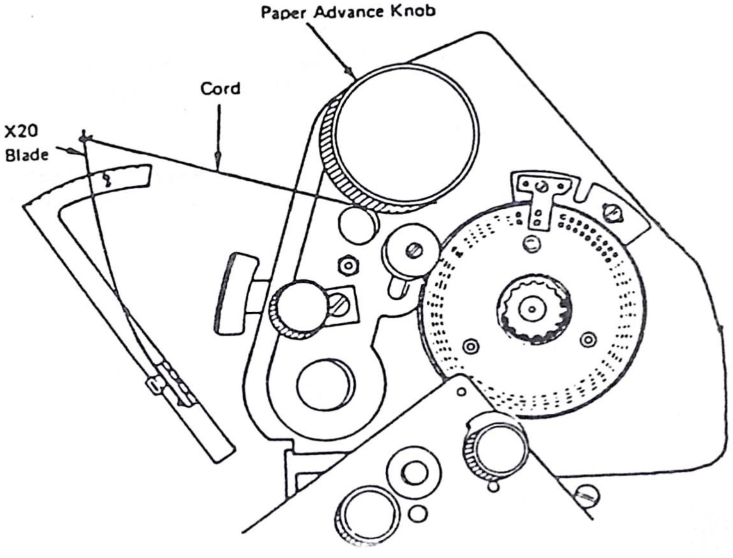
Check belt tension.
If too low you will have vertical registration problems.



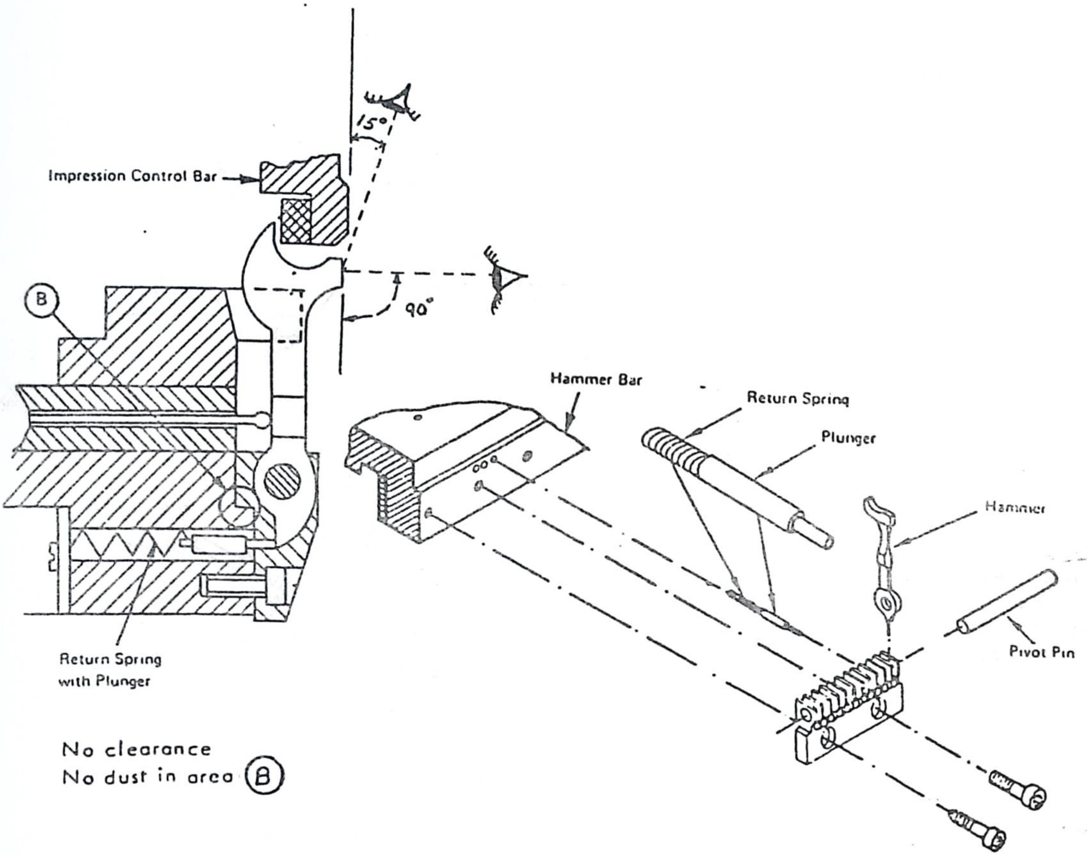
P/N 1897015

Partnumber on the tool must face the belt.

Check tractor torque.
200-800 grams with no more than 49 gram variations. See MLM 10-240 for actions.



1.23.0 HAMMER FACE AND BLOCK CHECK



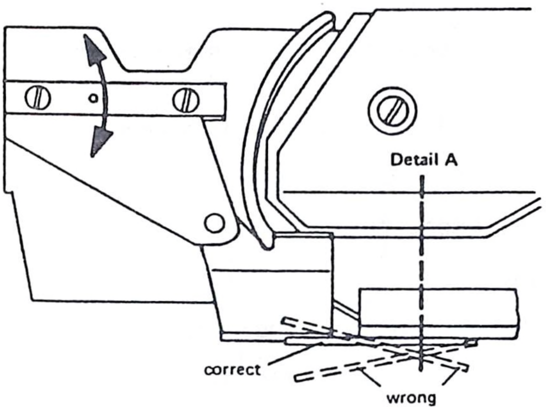
No clearance
No dust in area Ⓑ

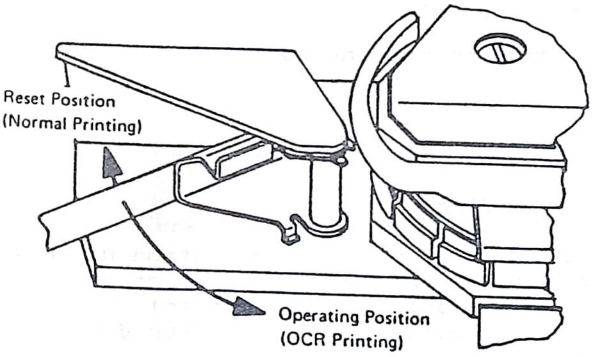
Hammers that have been in use for approximately 80 meg lines look worn at first glance. This is a false image. In order to find out if a surface is worn you should look to the hammer face at an angle of 15 degrees.

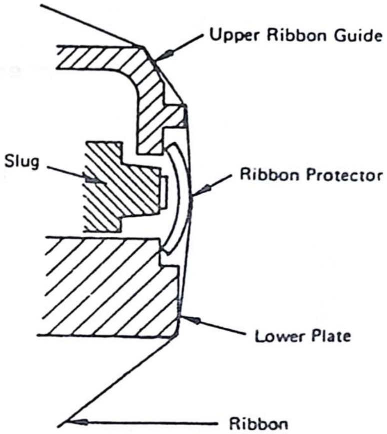
You should not replace a hammer block that looks bad but functions OK, but replace a hammer block which cannot be adjusted properly.

1.24.0 ADDITIONAL FOR OCR

- 1416 train (OCR).
- OCR ribbon P/N 1136430
- Check ribbon protector RPQ (see detail A)







The customer should review the contents of the 3203-5 Component Description and Users Guide (GA33-1529).

2.0 DIAGNOSTICS

The purpose of the following pages is to have a quick reference to the diagnostic handling procedures and the more complicated routines 6A, 6B, and 81-83. If you have problems running microdiagnostics not covered by these pages, refer to:
MLM chapter 18 for handling procedure
23 for diagnostic routine description
6 for description of routines 81-83

How to start diagnostics

This procedure is for routines 41 thru 83. For LCA routines, refer to MLM 18-040.

1. Assure the printer is varied off-line to the software.
2. Disable channel interface to printer.
3. Connect maintenance panel to DC03.
4. Press the printer "STOP" key.
5. Press "START/STOP" switch on maintenance panel. Display = 8000.
6. Key in 31 and press "ENTER".

   Routines 41 thru 48, and 74 will run automatically. If display = CF74 then proceed to the next step, if not go to MLM/MAPS.
7. Key in 31 and press "ENTER". Display = CC00.
8. Run routine (refer to appropriate routine description).

Meaning of MP display codes

Byte 1	Byte 2	Meaning
82	rtn	Routine loading
8C	rtn	Routine running
8D	xx	Dynamic error display if run option 01 entered
CA	rtn	Routine loaded and waiting for execution (only if run option 12 is entered)
CC	rtn/00	Diagnostic stopped and waiting for data
CE	msgcode	User action required (refer to routine description)
CF	rtn	Routine completed
C0	xx	xx = invalid data. Re-enter.
DX	yy	Input required (refer to routine description)
EX	xx	Error detected (refer to MAP 0150)

2.0 DIAGNOSTICS (cont.)

Control commands

10	Enter programming parameters
30	Set diagnostic mode for routines 91-AF
31	Set diagnostic mode for routines 41-83
32	Reset diagnostic mode
35	Display extended error data (MLM 18-065)
AA	Display last log (MLM 18-055)
BB	Display FCB (MLM 18-060)

Diagnostic run options

Enter one or more at CCXX time.

01	Do not stop on error
02	Loop the routine (to end loop, press START/STOP or wait for CFXX and press START/STOP)
08	Reset all options
11	Loop on error (after error, press START/STOP twice to run again)
12	Stop after loading routine (to start diagnostic press START/STOP twice)

How to display last log

Can be performed during customer operation. CAUTION: pay attention to last log byte meaning and reset conditions (MLM 18-055).

1. Connect maintenance panel to DC03.

2. Press printer STOP key. Display = 8000

3. Key in AA and press "ENTER". Display = B0xx (xx = first byte).

4. Press "ADVANCE" key. Display = B1xx (xx = next byte).

5. Keep pressing the "ADVANCE" key until BDxx is displayed.

6. Press "START/STOP" key to end. Display = 8000.

Common MAP and MLM references

Start of sense byte analysis	MAP 100-1
Sense byte summary	MLM 20-120
Extended error analysis	MLM 18-065
Last log data	MLM 18-055
Last log analysis	MAP 120-1

How to end diagnostics

1. Press AOP reset switch.
2. Put Enable/Disable switch to Enable.
3. Unplug the maintenance panel.
4. Have the system operator vary the 3203 on-line.
5. Inform the customer to load the FCB and UCSB buffers.

General Logic Probe power connections

D1 board - black to any D08, red to any D03 (+5V)
A1 board - black to A1F7D08, red to A1F7B11 (+6V)
B1 board - black to B1A1D04, red to B1A1B11 (+6V)

2.1.0 Routine 6A - Print/Skip Exerciser

Detailed description on MLM 23-060. This routine does the print and space operation shown on MLM 23-120.

1. Enter diagnostic mode (see "How to start diagnostics").

	Input	Display
2.		CC xx
3.	6A ent ss	CE 6C
4.	ss	CC 6A (to print with present image go to step 7)
5.	10 ent	D1 10
6.	id ent	CC 6A
7.	ss	8C 6A (print operation mode 1 is performed)
8.		CF 6A (routine completed)

NOTE: ent = ENTER
ss = START/STOP
id = Train image id (see chart)

Train Image ID Chart

01=AN	02=HN	03=GN	04=PCSAN
05=PCSHN	06=PN	07=QNC	08=QN
09=RN	0A=SN	0B=TN	0C=YN
0D=OAB	0E=ODA	0F=ONA	10=OAA

2.2.0 Routine 6B - Print Utility

This routine continually prints any data in any position and performs space operations. Detailed description on MLM 23-060 If machine has OCR feature, make sure ribbon protector is in position.

1. Enter diagnostic mode (see "How to start diagnostics").

	Input	Display
2.		CC xx
3.	6B ent ss	CE 6C
4.	ss	CC 6B (to print with present image go to step 7)
5.	10 ent	D1 10
6.	id ent	CC 6B
7.	ss	8C 6B then CE 6B
8.	ss	CC 6B
9.	10 ent	D1 10
10.	cc ent	D2 xx
11.	pp ent	D3 xx
12.	sp ent	CC 6B
13.	ss	8C 6B (printing starts)

To change character or space data, press START/STOP and return to step 9

NOTE:
ent = ENTER
ss = START/STOP
id = Train image id (see chart for routine 6A)
cc = Hex character code (example: C8 = "H")
pp = Print position in hex (01-84 or FF for all positions. Use chart from routine 82)
sp = Number of spaces between lines in hex (00-FF valid)

2.3.0 Routine 81 - Flight Time Unit Average

The test works as follows:
Each hammer is fired 32 consecutive times, 16 times to warm up the magnet and 16 times to measure the flight time average for that hammer. The average of each hammer position is compared against the entire unit average. Those positions that are out of tolerance with the unit average are stored as errors and are displayed later in the diagnostic.

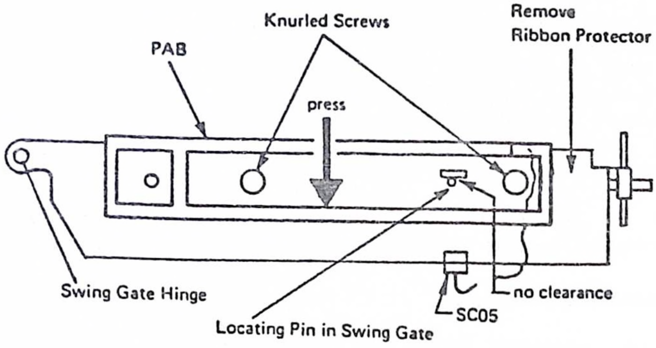
WARNING : This means that if any of the pre.req adjustments are wrong the test will not detect this.

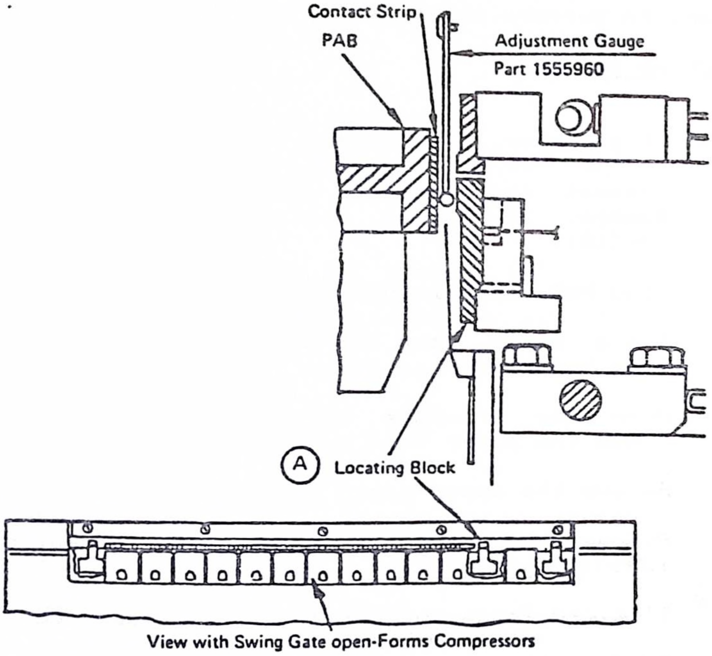
Measurement set up

It is assumed that you came here from the print quality flow chart to perform the test (if not, go to MLM page 6-150).

Machine set up

1. Plug jumper, P/N 1896460, into socket SC03 (MLM 19-020).
2. Inspect the contact strip on the PAB for wear and damage. If needed, install a new strip P/N 1894663 (MLM 10-310).
3. Plug PAB cable into SC05.
4. Close swing gate carefully so that the PAB remains in it's position.
5. Move the tractors together and install a punch card to close the paper torn switches.
6. Remove the upper paper guide.
7. Remove the rear unit and plug the thermal dummy plug P/N 1896460 into TC02.
8. Tilt and latch the carriage in the service position
9. Remove the two mounting screws for the bottom group paddle card connector assembly and install in horizontal position (MLM 6-120).
10. Set the Paper Thickness Knob to 6. Insert the adjustment gauge between the locating block A and the contact strip. Turn the Paper Thickness Knob toward 1 until you feel a light drag on the gauge. This puts the surface of the flight time strip 0.100 in. (2.54mm) from the locating block.
11. Set the Impression Control Knob to A.
12. Power on and run diagnostics.





Flight-Time Adjustment using PAB
Flight-Time Setup

2.3.0 ROUTINE 81 (cont.)

Running the routine

Detailed description on MLM 6-160.

Conditions required:

- Flight time setup
- Diagnostics loaded (see "How to start diagnostics")

	Input	Display
1.		CC xx
2.	81 ent ss	8C 81 for 10 seconds, then CE 81
3.	ss	CC 81 (for non-OCR adj go to step 6)
4.	10 ent	D1 10
5.	OC	CC 81
6.	ss	81 hh (hh= hex position of hammer, see chart) E0 81 (program stopped)
7.	advance	E1 xx (xx= stop code, C8-normal, C2-PAB error any other code-stop word list)
8.	advance	E2 00
9.	35 ent	E3 tn (tn= total hex number of positions in error)
10.	advance	E4 ps (ps= hex num. of first hammer in error)
11.	advance	E5 th
12.	advance	E6 tu (thtu = average flight time in hex)
13.	ss	CC 81
14.	ss	hh rc hh = hammer number rc = reason code, C5=early D3=late D6=open E2=shorted E6=wiggler Write down hh rc. If rc=D6 or E2 recheck PAB to hammer distance (MLM 6-150).
15.	advance	hh rc (continue pressing advance key until display = FF FF)
16.	ss	CC 81 (end of routine)

NOTE: If you want to run routine 82 now, do not change the paper thickness setting.

NOTE: If you get an error stop E081-E105 before measurement starts, check extended error byte EB (see MLM 18-065) for possible open tractor, EOF, or T-casting interlock switch.

2.4.0 Routine 82 - Flight Time Adjust with Auto Selection

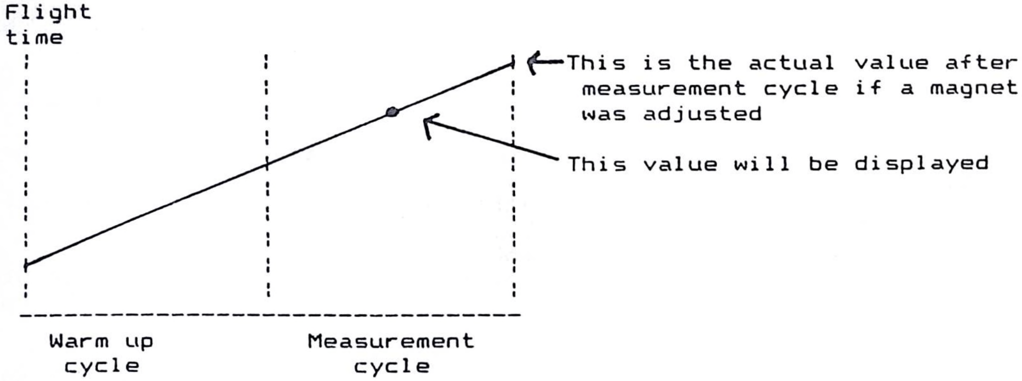
This routine is used to adjust the hammer flight time and will automatically select the hammer positions that are out of specification.

Routine information

This routine works as follows:
The position to be adjusted is fired 32 times.

- 16 times to warm up the magnet
- 16 times for measurement

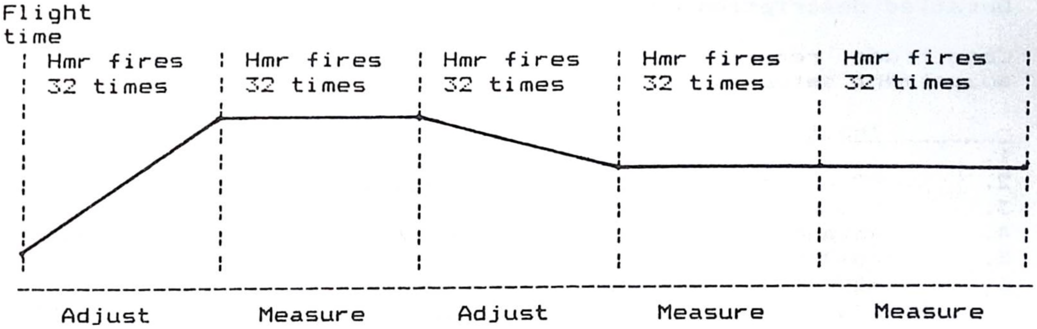
The test measures the average flight time during the measurement cycle. This is very important to remember as the value displayed does not correspond to the actual value if you adjusted during the measurement cycle (see figure 1).


Flight
time
This is the actual value after measurement cycle if a magnet was adjusted
This value will be displayed
Warm up cycle
Measurement cycle

*** Figure 1 ***

2.4.0 Routine 82 (cont.)

The recommended adjustment sequence is as follows (see figure 2):



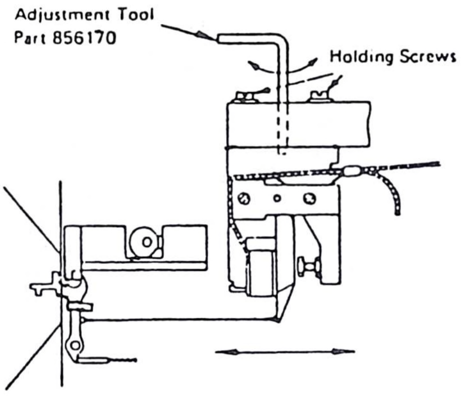
*** Figure 2 ***

* If OK measure only once more.

* If not OK proceed with adj. and measurement cycles.

* If OK stop and proceed with the next position.

One more important item to consider when adjusting flight time is the hammer magnet holding screws must be loosened just enough to allow movement of the magnet. You may note in most cases it is possible to move the magnet with the holding screws tightened. DON'T DO THAT. The reason is, when moving the magnet you will apply a torsion force to the holding screws and they will return, after some time, to their "normal" position and consequently the flight time is changed back to its "old" value.



2.4.0 Routine 82 (cont.)

Running the routine

Detailed description can be found on MLM 6-170.

Conditions required: Routine 81 ran to completion and the adjustment setup is done.

	Input	Display
1.		CC XX
2.	82 ent ss	8C 82 for 10 seconds then E0 82
3.	advance	E1 C8
4.	advance	E2 hh (hh= hex pos of hammer to be adj)
5.	ss	CC 82
6.	ss	8C 82 for 3 seconds, then HH ?? (adjust hammer as close as possible to a reading of ?? = 00)
7.	advance	E0 82
8.	advance	E1 C8
9.	advance	E2 hh go to step 5 until hh = FF then continue with step 10
10.	ss	CC 82 (all hammers adjusted, end of routine)

CAUTION: Do not remove PAB while train drive motor turns.
NOTE: Run combination of routines 81 and 82 only twice to avoid an endless loop.

Hex to Decimal Conversion Table

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
01	1	19	25	31	49	49	73	61	97	79	121
02	2	1A	26	32	50	4A	74	62	98	7A	122
03	3	1B	27	33	51	4B	75	63	99	7B	123
04	4	1C	28	34	52	4C	76	64	100	7C	124
05	5	1D	29	35	53	4D	77	65	101	7D	125
06	6	1E	30	36	54	4E	78	66	102	7E	126
07	7	1F	31	37	55	4F	79	67	103	7F	127
08	8	20	32	38	56	50	80	68	104	80	128
09	9	21	33	39	57	51	81	69	105	81	129
0A	10	22	34	3A	58	52	82	6A	106	82	130
0B	11	23	35	3B	59	53	83	6B	107	83	131
0C	12	24	36	3C	60	54	84	6C	108	84	132
0D	13	25	37	3D	61	55	85	6D	109		
0E	14	26	38	3E	62	56	86	6E	110		
0F	15	27	39	3F	63	57	87	6F	111		
10	16	28	40	40	64	58	88	70	112		
11	17	29	41	41	65	59	89	71	113		
12	18	2A	42	42	66	5A	90	72	114		
13	19	2B	43	43	67	5B	91	73	115		
14	20	2C	44	44	68	5C	92	74	116		
15	21	2D	45	45	69	5D	93	75	117		
16	22	2E	46	46	70	5E	94	76	118		
17	23	2F	47	47	71	5F	95	77	119		
18	24	30	48	48	72	60	96	78	120		

2.5.0 Routine 83 - Flight Time Adj. with Manual Selection

Conditions required:

- Routine 81 ran to completion
- Adjustment setup has been done (MLM 6-150)

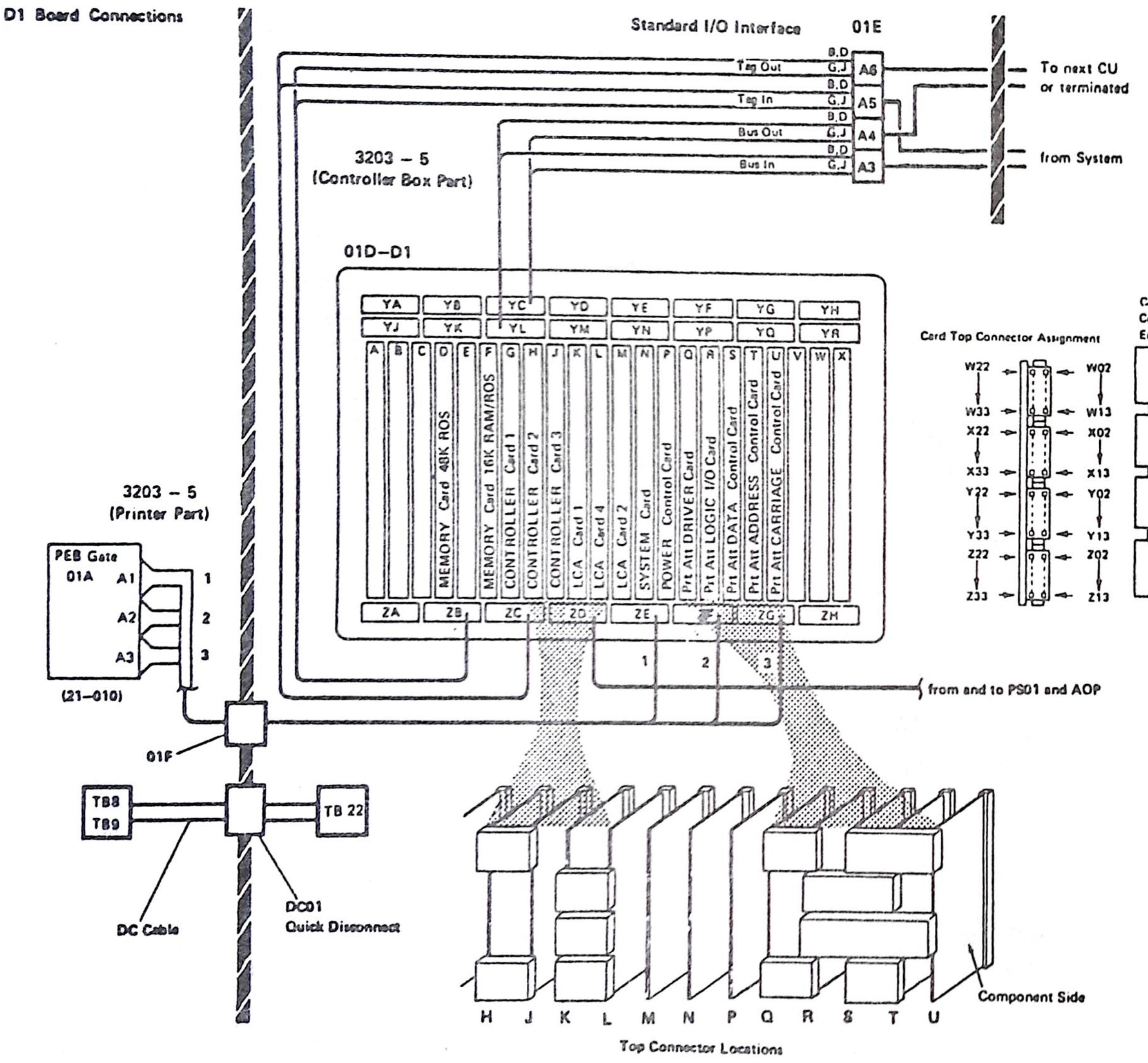
	Input	Display
1.		CC xx
2.	83 ent ss	8C 83 for 10 seconds then
3.		CE 83
4.	ss	CC 83
5.	10 ent	D1 10
6.	hh ent	CC 83 (hh= hex position of hammer)
7.	ss	8C 83 for 3 seconds then hh ?? (adjust hammer as close as possible to a reading of ?? = 00)
8.	advance	to adjust next hammer, go to step 3
	or	
	ss	to end routine, display = CC 83

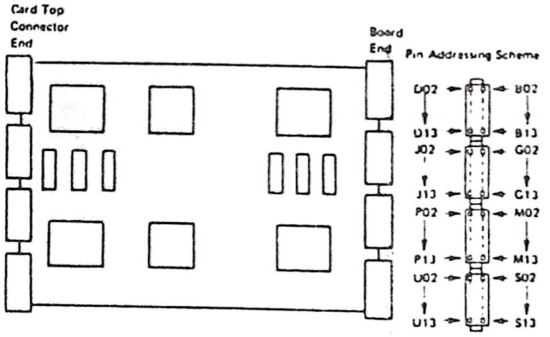
CAUTION: Do not remove PAB while train drive motor turns.

Hex to Decimal Conversion Table

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
01	1	19	25	31	49	49	73	61	97	79	121
02	2	1A	26	32	50	4A	74	62	98	7A	122
03	3	1B	27	33	51	4B	75	63	99	7B	123
04	4	1C	28	34	52	4C	76	64	100	7C	124
05	5	1D	29	35	53	4D	77	65	101	7D	125
06	6	1E	30	36	54	4E	78	66	102	7E	126
07	7	1F	31	37	55	4F	79	67	103	7F	127
08	8	20	32	38	56	50	80	68	104	80	128
09	9	21	33	39	57	51	81	69	105	81	129
0A	10	22	34	3A	58	52	82	6A	106	82	130
0B	11	23	35	3B	59	53	83	6B	107	83	131
0C	12	24	36	3C	60	54	84	6C	108	84	132
0D	13	25	37	3D	61	55	85	6D	109		
0E	14	26	38	3E	62	56	86	6E	110		
0F	15	27	39	3F	63	57	87	6F	111		
10	16	28	40	40	64	58	88	70	112		
11	17	29	41	41	65	59	89	71	113		
12	18	2A	42	42	66	5A	90	72	114		
13	19	2B	43	43	67	5B	91	73	115		
14	20	2C	44	44	68	5C	92	74	116		
15	21	2D	45	45	69	5D	93	75	117		
16	22	2E	46	46	70	5E	94	76	118		
17	23	2F	47	47	71	5F	95	77	119		
18	24	30	48	48	72	60	96	78	120		

3.0 01D-D1 BOARD P/N 8489749





PN's of Top Connectors

2 wide 2633938
3 wide 4134831
4 wide 2732463

TIE DOWN LIST

THIS TIE DOWN LIST CONTAINS TIE DOWNS FOR 01D–D1–BOARD

DESCRIPTION	MLM REFERENCE	FROM TO	REMARKS
RESTART ADDR X 0000 X	3–UC 300	J2 D02 – G2 S12	PERMANENT
PRIORITY SELECTION	24–070–D	M2 G09 – H6 A02 H6 A04 – G6 E04 H6 B02 – M2 S02	HIGH PRIORITY
		M2 G09 – H6 A04 H6 B02 – H6 A02 G6 E04 – M2 S02	LOW PRIORITY

SSD–AD

01D-D1 RESISTOR LOCATION (750 OHMS - P/N 8486189)

01D-D1-J1D13 to 01D-D1-L1D13 (MLM 3-SYS01)
01D-D1-V1A11 to 01D-D1-T1A11 (MLM 3-UC100)

4.0 CARD LIST, 01D

LOCAT.	ID	FUNCTION	P/N	REA	EC	REMARKS
YA		CELIA	1865015			PLUGGED ON PIN SIDE
A2						
B2						
C2		E P R O M W/O DIAGNOSTICS	NO P/N FOR TEMP.FIX ONLY PLUG JUMPER NO.31 ON CARD N2			REMOVE CARD D2 AND (REF.MLM 24-050)
D2	MEM2	MEM 48K ROS	1597570 P1/S/		756042	MICRO CODE LVL25
			(1555480) P1		756007	RPQ/XD5798 LVL23
E2						
F2	MEM1	MEM 16K RAM/ROS	1555925 S		756019	MICRO CODE LVL24
			(1555482)		756007	RPQ/XD5798 LVL23
G2	UC10	CONTROLLER 1	2411872			
H2	UC20	CONTROLLER 2	2411851			
J2	UC30	CONTROLLER 3	6830741 S			
K2	LCA1	LCA1	1587906		755978	
L2	LCA4	LCA4	4760378 S			
M2	LCA2	LCA2	1586499			
N2	SYS0	SKJ.SYST.	8526520			
P2	PWR0	SKJ.CONTROL MEM3	4437397 S		755975	
Q2	SJ15	SKJ.DRIVER	8528366			
R2	SJ11	SKJ. I/O	4137518			
S2	SJ12	SKJ.DATA	5590538			
T2	SJ14	SKJ.ADR.	5590544 S		755978	
U2	SJ13	SKJ.CARR	5590540			
V2						
W2						
X2						

NOTE: PARTS INSTALLED IN PRINTER MAY NOT BE ON LATEST PN LEVEL AS SHOWN ON PLUG LIST.
CHARACTER BEHIND PN: S = SUBSTITUTION, C = CONCURRENCE, P(X) = PRE REQUISITE,
R = REPLACED, SEE 3-026.

THE FOLLOWING CARD ASSEMBLIES WITH THE SAME ID, BUT DIFFERENT PARTNUMBERS, ARE FUNCTIONALLY COMPATIBLE AND PIN COMPATIBLE, REGARDLESS OF THEIR DIFFERENT PARTNUMBERS.
EITHER CARD PARTNUMBER INDICATED FOR THE SAME ID MAY BE PLUGGED IN THE SAME PLUGPOSITION.

CARD SUBSTITUTION LIST

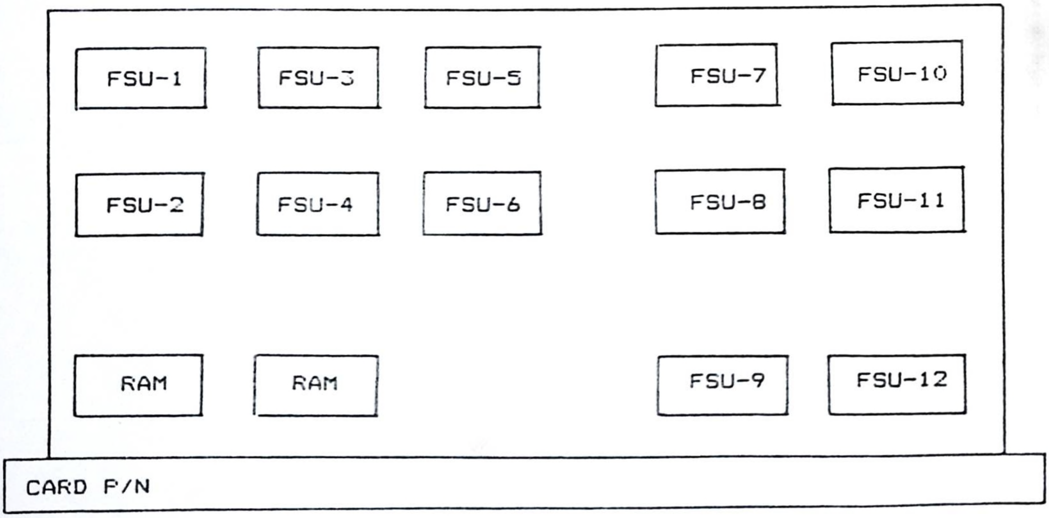
	OLD ——————>					NEW	
ID	COMPATIBLE P/N	COMPATIBLE P/N	COMPATIBLE P/N	COMPATIBLE P/N	COMPATIBLE P/N	COMPATIBLE P/N	REMARKS
LCA4	8564646	8564567	8564633	5167277	5167284		
MEM1	8487370						
MEM2	8487373	8487480	8487343	8487339 P1	4265450 P1	1555926 P1	
PWR0	8527067	8564490					
SJ14	4137528						
UC30	2411893						

CARD DEPENDENCE

NOTE	ID	
P1	MEM2	PRE-REQUISITE IS SJ14, P/N 5590544

5.0 01D-D1-D2 MODULE PART NUMBERS

ROS LVL	20	21	22	23	24	25
CARD P/N	8487480	8487343	8487339	4265450	1555926	1597570
EC	755950	755955	755974	755996	756019	756042
FSU-1	8487007				1555928	
2	8487006					
3	8487005				1555929	
4	8487004					
5	8487332		8487335	4265451	1555930	
6	8487331	8487327	8487336	4265452	1555931	
7	8487324		8487337	4265453	1555932	1597569
8	8487325		8487338		1555933	
9	8487003					
10	8487002	8487329				
11	8487001	8487328			1555955	
12	8487326				1555956	



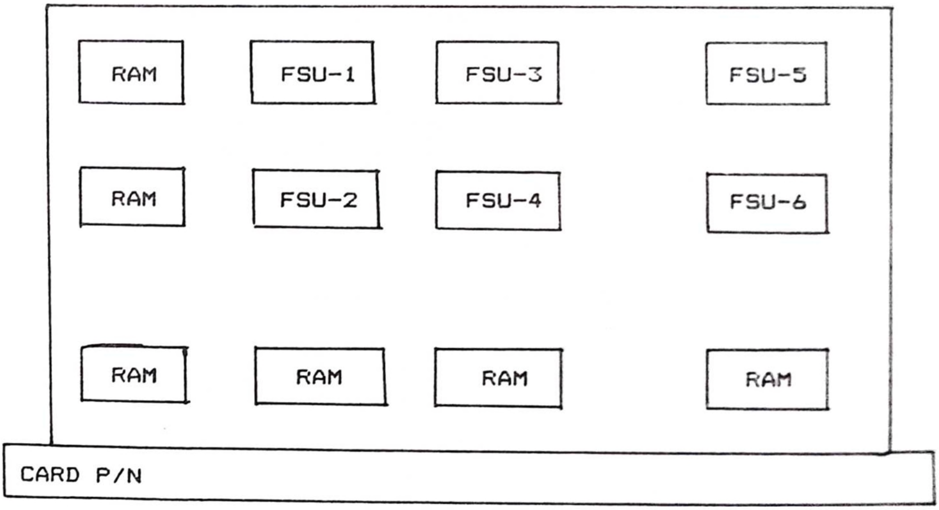
6.0 01D-D1-F2 MODULE PART NUMBERS

ROS LVL	20-23	24-25
CARD P/N	8487370	1555925
EC	368008	756019
FSU-1	8487016	
2	8487017	
3	8487018	
4	8487019	1555927
5	8487015	
6	8487321	

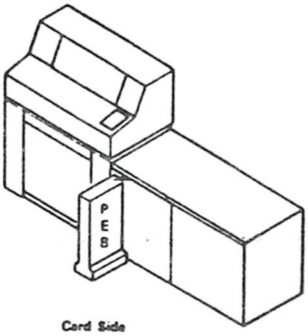
THE ROS MODULE PART NUMBERS ARE FOR ROS LEVEL IDENTIFICATION ONLY.

THE ROS MODULES ON THE D2 AND F2 CARDS ARE NOT AVAILABLE FOR FIELD REPLACEMENT.

NOTE: FSU-4 changes P/N with level 24



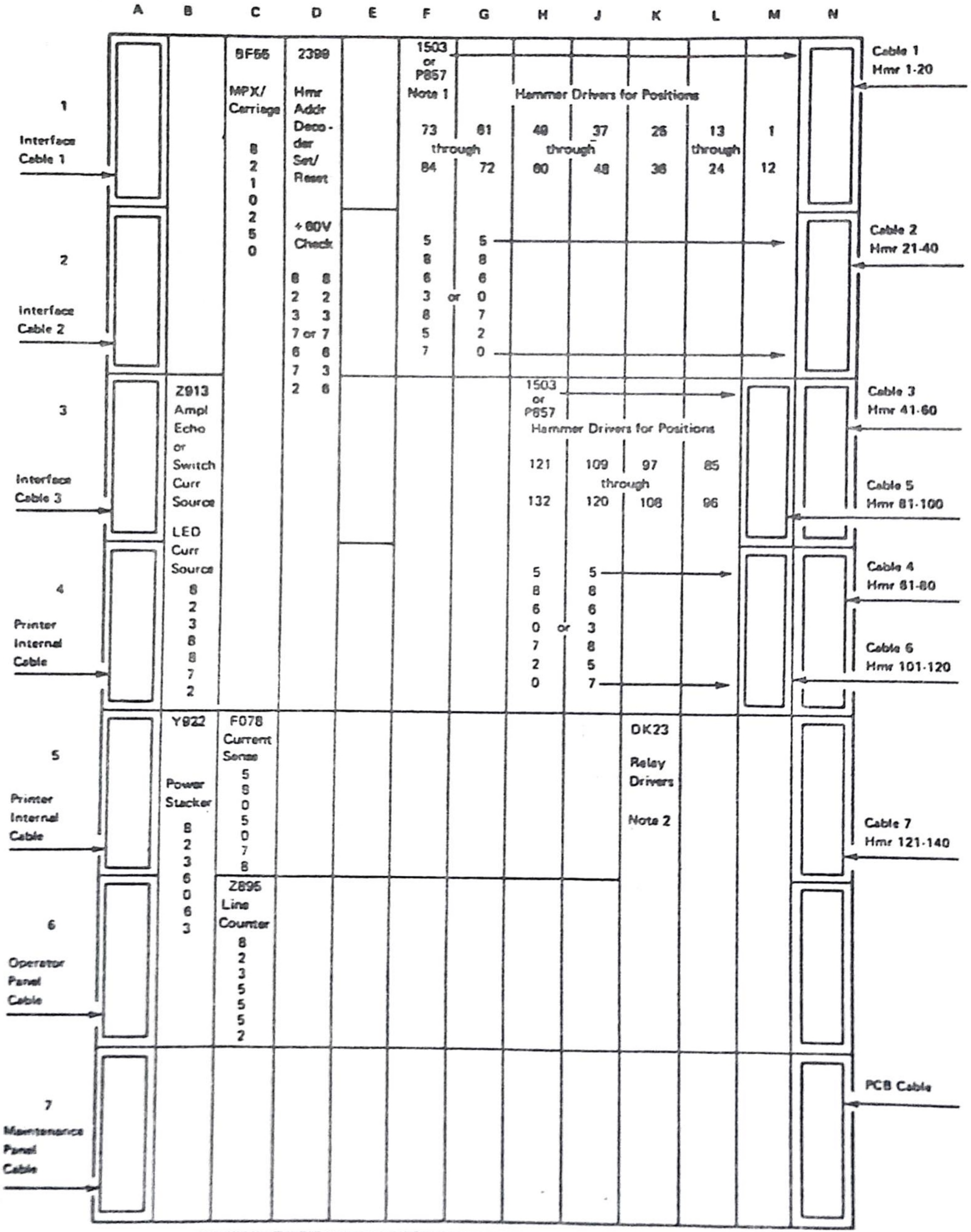
7.0 01A BOARD - MOD5 P/N 4699300



Card Side

Note 1: Hammer driver cards Parts 5860720 and 5863857 are interchangeable.

Note 2: The Rel. Driver Card may have different P/Ns: 8263629 or 4265683.



- Before replacing cards, press STOP key and switch off printer power.

8.0 RETAIN TIPS

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TO SELECT A TITLE, ENTER THE TITLE NUMBER AND THE -ENTER- KEY.
TO SELECT THE NEXT TITLE PAGE, JUST DEPRESS THE -ENTER- KEY.
RECORDS FOUND =  122.
     1 T/D317    TIP 3203 180 -SF-SHARP PULLEYS
     2 T/D698    TIP 3203 289 -AI-KICKPLATE
     3 T/D793    TIP 3203 263 -CA-ECA112
     4 T/D807    TIP 3203 233 -AI-STACKER JAMS
     5 T/D942    TIP 3203 266 -CA-ECA117

PAGE 2   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
     6 T/D1093   TIP 3203 276 -CA-ECA111
     7 T/D1398   TIP 3203 293 -AI-CELIA CARD
     8 T/D1491   TIP 3203 232 -CA-3203 5 ECA106
     9 T/D2243   TIP 3203 291 -AI-RELAY K009
    10 T/D2862   TIP 3203 229 -SF-SHARP EDGE
    11 T/D3183   TIP 3203 231 -AI-INT TESTER
    12 T/D4764   TIP 3203 300 -AI-LCA4 CARD IFCC
    13 T/D5010   TIP 3203 269 -AI-ECA111 RETURN
    14 T/D5756   TIP 3203 294 -AI-INITIAL SELECT
    15 T/D5763   TIP 3203 296 -AI-REAR BLOWER

PAGE 3   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    16 T/D5875   TIP 3203 299 -AI-CARRIAGE BELT
    17 T/D6098   TIP 3203 297 -AI-TRAIN PARTS
    18 T/D6315   TIP 3203 298 -AI-RIBBON SKEW
    19 T/D6546   TIP 3203 305 -CA-121 EC756066D CHARLOTTE    83/09
    20 T/D6729   TIP 3203 254 -EC- B/M5654111,EC755991X INFO ,ECA
    21 T/D6736   TIP 3203 255 -EC- B/M5654115,EC755991X INFO ,ECA
    22 T/D6948   TIP 3203 272 -EC- B/M1555737,EC756019B INFO ,ECA
    23 T/D7372   TIP 3203 301 -AI-CARRIAGE CHECKS
    24 TD2208    TIP 3203 292 -AI-PRINT QUALITY
    25 TD2323    TIP 3203 310 -CA-119 EC755991Y CHARLOTTE    83/09

PAGE 4   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    26 TD2546    TIP 3203 124 -AI-RIBBON LIFE
    27 TD21256   TIP 3203 303 -CA-120 EC756066C CHARLOTTE    83/09
    28 TD21462   TIP 3203 274 -AI-LINE COUNTER
    29 TD22329   TIP 3203 090 -AI-WIRING ERROR
    30 TD22792   TIP 3203 259 -EC- B/M1555919,EC3656188 INFO ,ECA
    31 TD23765   TIP 3203 154 -AI-BINDING SWING
    32 TD23848   TIP 3203 275 -AI-SYNC CHECKS
    33 TD23875   TIP 3203 316 -CA-123 EC756042B CHARLOTTE    83/11
    34 TD24123   TIP 3203 153 -AI-ECA CHART
    35 TD24226   TIP 3203 314 -DD-CELIA CARD PINS

PAGE 5   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    36 TD24739   TIP 3203 295 -AI-P/N ERROR
    37 TD24819   TIP 3203 240 -CA-108
    38 TD24985   TIP 3203 312 -AI-NEW RIBBON HUB
    39 TD25638   TIP 3203 258 -AI-ERROR MLM 2 120
    40 TD25711   TIP 3203 281 -AI-MODEL CHANGES
    41 TD25720   TIP 3203 257 -EC- B/M5654116,EC755991X INFO ,ECA
    42 TD25948   TIP 3203 158 -AI-CHANNEL CHECK
    43 TD26003   TIP 3203 160 -AI-STACKER TRAY
    44 TD26112   TIP 3203 161 -DD-CARR MAP ERROR
    45 TD26192   TIP 3262     -AI-A1 PLANAR REPL

PAGE 6   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    46 TD26193   TIP 3203 253 -EC- B/M5654117,EC755991X INFO ,ECA
    47 TD26194   TIP 3203 256 -EC- B/M5654117,EC755991X INFO ,ECA
    48 TD26199   TIP 3203 262 -CA-ECA113
    49 TD26248   TIP 3203 162 -AI-3203 5 PROBLEMS
    50 TD26297   TIP 3203 264 -CA-ECA110
    51 TD26300   TIP 3203 265 -CA-ECA118
    52 TD26301   TIP 3203 317 -AI-REST ASSEMBLY
    53 TD26303   TIP 3203 267 -CA-ECA116
    54 TD26310   TIP 3203 268 -CA-ECA115
    55 TD26382   TIP 3203 270 -EC- B/M1555737,EC756019B INFO ,ECA

PAGE 7   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    56 TD27094   TIP 3203 273 -EC- B/M1555917,EC756039B INFO ,ECA
    57 TD27311   TIP 3203 290 -SF-BLOWER EXPOSURE
    58 TD27743   TIP 3203 278 -AI-DC01 CONNECTOR
    59 TD371     TIP 3203 185 -CK-PRINT CHECK
    60 TD3300    TIP 3203 225 -CA-3203 5 ECA104
    61 TD3492    TIP 3203 286 -AI-TOP COVER BRAKE
    62 TD3523    TIP 3203 279 -AI-STACKER
    63 TD3754    TIP 3203 246 -EC- B/M1555737,EC756019B INFO ,ECA
    64 TD3902    TIP 3203 189 -SF-3203 SHARP EDGE
    65 TD31023   TIP 3203 190 -AI-CABLE SHORTS

PAGE 8   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    66 TD31213   TIP 3203 271 -EC- B/M5654117,EC755991  INFO ,ECA
    67 TD31539   TIP 3203 249 -AI-RIBBON WEAR
    68 TD31555   TIP 3203 230 -AI-MOD 3 MLM ERROR
    69 TD31605   TIP 3203 250 -EC- B/M1597588,EC756036  INFO ,ECA
    70 TD31811   TIP 3203 191 -CA-093
    71 TD31859   TIP 3203 192 -CA-094
    72 TD31861   TIP 3203 193 -CA-095
    73 TD32134   TIP 3203 194 -SF-SAFETY 3203 5
    74 TD32338   TIP 3203 287 -AI-CARRIAGE ADJUST
    75 TD32453   TIP 3203 198 -CA-096
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8.0 RETAIN TIPS (cont.)

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PAGE 9   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  76 TD32455  TIP 3203 199 -CA-098
  77 TD32886  TIP 3203 201 -AI-CABLE CONNECTOR
  78 TD32967  TIP 3203 202 -CA-101
  79 TD33018  TIP 3203 203 -AI-FUSE PART NUM
  80 TD33237  TIP 3203 248 -AI-PHASE ROTATION
  81 TD33291  TIP 3203 260 -EC- B/M1555920,EC365618B INFO ,ECA
  82 TD33293  TIP 3203 261 -CA-ECA114
  83 TD33478  TIP 3203 204 -AI-POWER PROBLEM
  84 TD33518  TIP 3203 205 -SF-SHARP COVERS
  85 TD33520  TIP 3203 206 -AI-SHORTING WIRES


PAGE 10  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  86 TD33522  TIP 3203 207 -DD-FALSE ERRORS
  87 TD33564  TIP 3203 251 -AI-RETURN MACH PKG
  88 TD33821  TIP 3203 208 -AI-BUFFER LOAD
  89 TD33876  TIP 3203 210 -CA-103
  90 TD33878  TIP 3203 211 -CA-102
  91 TD33880  TIP 3203 212 -AI-3203 HANG READY
  92 TD34411  TIP 3203 213 -AI-BOARD CABLE P/N
  93 TD34412  TIP 3203 214 -AI-MLM VOL P/N
  94 TD34485  TIP 3203 280 -DD-INST  PROBLEM
  95 TD34499  TIP 3203 216 -AI-STACKER SPACER


PAGE 11  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  96 TD34933  TIP 3203 284 -AI-INTERMIT ERRORS
  97 TD35281  TIP 3203 217 -AI-3203 TOOLS
  98 TD35285  TIP 3203 218 -AI-DUCT TABLE
  99 TD35435  TIP 3203 220 -EC- B/M5575726,EC755974  INFO ,ECA
 100 TD35437  TIP 3203 221 -EC- B/M5575728,EC755996  INFO ,ECA
 101 TD35469  TIP 3203 277 -AI-STACKER MOTOR
 102 TD35579  TIP 3203 222 -EC- B/M7557818,EC755988  INFO ,ECA
 103 TD35637  TIP 3203 223 -AI-MISSING PRINT
 104 TD35641  TIP 3203 224 -CA-3203 5 ECA105
 105 TD35827  TIP 3203 226 -CA-3203 5 ECA104


PAGE 12  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 106 TD35828  TIP 3203 227 -AI-RIBBON SKEW
 107 TD35945  TIP 3203 228 -AI-MOD4 TO MOD5 BM
 108 TD36518  TIP 3203 304 -EC-ECA120 ERRORS
 109 TD36590  TIP 3203 306 -DD-INTF CONNECTORS
 110 TD36634  TIP 3203 236 -AI-RIBBON SKEW
 111 TD36640  TIP 3203 237 -AI-HANGS 2 MINUTES
 112 TD36702  TIP 3203 238 -CA-107
 113 TD37061  TIP 3203 244 -DD-3203 MOD 5
 114 TD37433  TIP 3203 313 -AI-RIBBON BAR
 115 TD37435  TIP 3203 315 -AI-HAMMER BLOCKS
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* PAGE 13  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
   116 TD37498  TIP 3203 318 -AI-LOST LINE HANG
   117 TD37539  TIP 3203 320 -AI-RIBBON SKEW
   118 TD37727  TIP 3203 321 -AI-PLASTIC SHIELD
   119 TD37732  TIP 3203 322 -AI-TRACTOR SPRING
   120 TD37736  TIP 3203 323 -DD-CELIA BFAE
   121 TD37737  TIP 3203 324 -AI-N2 SYSTEM CARD
   122 TD37740  TIP 3203 325 -DD-13VAC INCORRECT
```

9.0 RETAIN SYMPTOM FIX

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TO SELECT A TITLE, ENTER THE TITLE NUMBER AND THE -ENTER- KEY.
TO SELECT THE NEXT TITLE PAGE, JUST DEPRESS THE -ENTER- KEY.
RECORDS FOUND =  169.
    1 SFA86     3203 FAILS TEST 52                        HC02 3203
    2 SFA118    3203 GETTING NPR411                       HC01 3203
    3 SFA249    3203 GETTING 550F ERRORS                  HC01 3203
    4 SFA260    3203 WAVY PRINT SPURIOUS INTERRUPT        HC31 3203
    5 SFA484    PRINT CHECKS - HAMMER CHECKS              HC05 3203


 PAGE 2   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
    6 SFA536    3203 WITH HOT I/O                         HC01 3203
    7 SFA630    PRINTER WON'T POWER UP CELIA 800A         HC01 3203
    8 SFA632    CHANNEL ERRORS                            HC04 3203
    9 SFA635    CARRIAGE FAIL TO MOVE CHECKS              HC13 3203
   10 SFA651    WON'T POWER UP IN REMOTE                  HC08 3203
   11 SFA736    3203 RIBBON DAMAGE                        HC07 3203
   12 SFA910    3203 WITH CARRIAGE MOVE CHECK             HC01 3203
   13 SFA965    DIAGNOSTIC 71 FAILS 3203                  HC01 3203
   14 SFA1011   INTERMITTENT CHECK LITES                  HC01 3203
   15 SFA1046   LOCATION OF 1416 UCS HOME CHARACTER       HC01 3203


 PAGE 3   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
   16 SFA1063   3203 WON'T POWER UP                       HC01 3203
   17 SFA1091   MYLAR RIBBONS STALLS FABRIC RIBBON OK     HC01 3203
   18 SFA1127   3203 MOD5 DROPS READY AND HANGS.          HC05 3203
   19 SFA1216   3203'S ALTERNATE PRINTING UNDER VM        HC01 3203
   20 SFA1526   3203 CONTROLLER GOES TO SLEEP             HC03 3203
   21 SFA1555   INTF CNTL CHK 3203 MOD 5 ON 2914/2870     HC04 3203
   22 SFA1557   CELIA ADDR=83C2 INTERFACE CONTROL CHK.    HC01 3203
   23 SFA1560   MP681300,671300.F9=C0,FA=08,FB=XX         HC03 3203
   24 SFA1634   3203 DROPPING READY                       HC01 3203
   25 SFA1663   WRONG OP IN INDICATION                    HC01 3203


 PAGE 4   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
   26 SFA1752   INTERFACE CNTRL CHECKS 3203 MOD5          HC01 3203
   27 SFA1755   INTERFACE DISABLES ITSELF 3203 MOD5       HC11 3203
   28 SFA1765   3203 M5 PRINT CHECK CHECKS                HC01 3203
   29 SFA1799   ROUTINE 61 FAILS                          HC02 3203
   30 SFA1859   CONTROLLER CHECKS AND TIMEOUTS            HC17 3203
   31 SFA1913   CHARACTER CUTOFF AND OCR SMUDGE           HC03 3203
   32 SFA1961   3203 WITH CHECK LIGHT AT POWER ON         HC01 3203
   33 SFA1988   JUMPER 22 ON SYSTEM CARD                  HC06 3203
   34 SFA2107   POWER UP PROBLEM                          HC01 3203
   35 SFA2310   3203 MOD5 OFF LINE POWER PROBLEM          HC01 3203


 PAGE 5   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
   36 SFA2316   RANDOM PRINT CHECKS                       HC08 3203
   37 SFA2330   FALSE STACKER JAMS                        HC01 3203
   38 SFA2349   3203 MOD5 PLB PARITY ERROR PRINT WRONG    HC01 3203
   39 SFA2601   3203 GETTING EQUIPMENT CHECKS             HC01 3203
   40 SFA2671   3203 DROPPING POWER                       HC01 3203
   41 SFA2680   PAPER GOES BACKWARD AFTER SKIP            HC01 3203
   42 SFA2683   3203 GETTING 610F ERROR                   HC01 3203
   43 SFA2741   PRINT CHECK'S                             HC01 3203
   44 SFA3168   3203 STOPS IML & IPL OF 4331              HC01 3203
   45 SFA3318   SYSTEM HANG ON STOP KEY UNDER VM/370      HC03 3203


PAGE 6   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  46 SFA3539   3203 GETS CELIA=BFEE ON POWER ON          HC01 3203
  47 SFA3540   3203 PRINT CHECKS                         HC01 3203
  48 SFA3652   WAVY PRINT                                HC02 3203
  49 SFA3723 . 3203 IFCC ON 2870                         HC01 3203
  50 SFA3952   HAMMER MISFIRE IN 1 OR MORE POSITIONS     HC04 3203
  51 SFA3965   3203 WITH POOR PRINT QUALITY              HC01 3203
  52 SFA4045   3203 LIGHTS FLASHING                      HC03 3203
  53 SFA4046   3203 WITH MACHINE AND PRINT CHECKS        HC01 3203
  54 SFA4047   3203 GETTING NPR434 ERRORS                HC01 3203
  55 SFA4048   3203 HANGS WHEN ENABLE SWITCH USED        HC01 3203


PAGE 7   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  56 SFA4050   3203 HANG WHILE LOADING BUFFERS           HC03 3203
  57 SFA4054   3203 WITH SYNC CHECKS                     HC01 3203
  58 SFA4058   3203 STOPS IN ROUTINE 58                  HC01 3203
  59 SFA4062   3203 PRINTING GARBAGE                     HC01 3203
  60 SFA4168   3203 WON'T POWER UP                       HC08 3203
  61 SFA4254   3203 WITH INTERLOCK & STACKER LIGHTS      HC01 3203
  62 SFA4255   53 AND 55 TEST FAILS.                     HC01 3203
  63 SFA4345   51 A1 00 B3 E3 ON POWER ON, NO RESET      HC01 3203
  64 SFA4346   CELIA BFEE                                HC01 3203
  65 SFA4347    NO PRINTER 6 VOLTS                       HC01 3203


PAGE 8   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  66 SFA4348    EQUIPMENT CHECKS                         HC01 3203
  67 SFB11     3203 WITH DIAGNOSTIC ERROR                HC01 3203
  68 SFB183    CELIA FFFE                                HC01 3203
  69 SFB201    CARRIAGE MOVE CHECKS                      HC08 3203
  70 SFB236    INSTALLATION PROBLEMS                     HC03 3203
  71 SFB261    CARRIAGE FAIL TO MOVE CHECKS              HC02 3203
  72 SFB347    3203 CARRIAGE RESTORE KEY DROPS 60V       HC01 3203
  73 SFB447    DATA CHECKS/PRINTS SLOW/                  HC26 3203
  74 SFB461    3203 M5 WON'T POWER UP                    HC02 3203
  75 SFB515    3203 TRIPS CB1                            HC01 3203


PAGE 9   THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  76 SFB557    ATTACHMENT COIL PROTECT CHECKS            HC03 3203
  77 SFB603    3203 EQUIPMENT CHECKS                     HC01 3203
  78 SFB624    IFCC ON 3203 MOD5                         HC01 3203
  79 SFB658    3203 RIBBON WEAR                          HC01 3203
  80 SFB692    POWER WON'T HOLD                          HC04 3203
  81 SFB804    DIAG STOP 620200 62-02-00 62 02 00        HC02 3203
  82 SFB939    RIBBON RUNS CONTINUOUSLY, CANNOT READY    HC01 3203
  83 SFB1003   HANGS CAN'T DROP READY                    HC03 3203
  84 SFB1068   3203 LOST LINES/DROPS DATA                HC02 3203
  85 SFB1080   3203 LOCKS UP INTERMITTENTLY              HC01 3203


PAGE 10  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  86 SFB1220   EXCESSIVE RIBBON SMUDGE                   HC01 3203
  87 SFB1238   HANG WITH READY LIGHT                     HC07 3203
  08 SFB1440   POWER WON'T STAY UP                       HC01 3203
  89 SFB1505   WON'T POWER UP COMPLETE                   HC53 3203
  70 SFB1555   DIAGONAL PRINT ROUTINE 68 FAILURES        HC27 3203
  91 SFB1708   3203 MOD5 HANGS NOT READY                 HC02 3203
  92 SFB1896   3203 DROP READY,IR,CHECK LIGHTS           HC01 3203
  93 SFB2062   3203 WAVY PRINT                           HC01 3203
  94 SFB2064   3203 MOD5 BLOWS PS01 FUSE 12              HC03 3203
  95 SFB2091   INTERMITTENT PRINT CHECKS                 HC06 3203
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9.0 RETAIN SYMPTOM FIX (cont.)

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PAGE 11  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
  96 SFB2163  3203 UCS GEAR TEETH BREAKING                   HC05 3203
  97 SFB2166  FLIGHT TIME ADJUSTMENT PROBLEM                 HC01 3203
  98 SFB2216  6VOLT UNDERVOLTAGE CHECKS,POWERSDOWN           HC07 3203
  99 SFB2218  3203 MOD5 COIL PROT. CHK.& WON'T PRINT         HC03 3203
 100 SFB2244  INTERMITTANT PRINT OR CARRIAGE CHECKS          HC01 3203
 101 SFB2354  FALSE COIL PROTECT CHECKS                      HC01 3203
 102 SFB2356  MANUAL INTERFACE TESTER ON 3203 MOD5           HC01 3203
 103 SFB2423  PRINT CKS AND MP671300,681300                  HC02 3203
 104 SFB2446  PRINT CHECK COIL PROTECT RIBBON RUNS           HC01 3203
 105 SFB2447  3203 NOT PRINTING  PRINT                       HC01 3203

PAGE 12  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 106 SFB2456  3203 CARRIAGE SKIP PROBLEM                     HC01 3203
 107 SFB2521  HIGHLY INTERMITTENT SYNC CHECKS.               HC01 3203
 108 SFB2541  3203 DROPPING POWER                            HC02 3203
 109 SFB2648  3203 GETTING PRINT CHECKS                      HC01 3203
 110 SFB2663  3203 WITH CELIA STOP 8026                      HC01 3203
 111 SFB2710  NOT STOPPING ON END OF FORMS                   HC40 3203
 112 SFB2851  3203 WITH CELIA BFDA STOP                      HC02 3203
 113 SFB2893  SYNC CHECKS INTERMITTENT SYNC CHECKS           HC04 3203
 114 SFB2915  3203 GETTING EQUIPMENT CHECKS                  HC01 3203
 115 SFB2917  3203 PAPER GOES BACKWARD ON RESTORE            HC01 3203

PAGE 13  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 116 SFB2972  3203 STEP CHECKS WHILE SKIPPING                HC01 3203
 117 SFB2981  3203 GETTING EQUIPMENT CHECKS                  HC01 3203
 118 SFB2992  3203 HANGS ON IML OF 4331                      HC01 3203
 119 SFB3002  3203 M5 HANGING CHANNEL                        HC01 3203
 120 SFB3273  3203 M5 WITH PRINT CHECKS                      HC02 3203
 121 SFB3274  3203 M5 HANGS                                  HC01 3203
 122 SFB3297  RIBBON DAMAGE INCORRECT SKEW                   HC02 3203
 123 SFB3328  3203 ROUTINE 58 FAILURE                        HC02 3203
 124 SFB3345  3203 GETTING PRINT AND DATA CHECKS             HC01 3203
 125 SFB3375  3203 POWER STACKER WON'T LOWER                 HC01 3203

PAGE 14  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 126 SFB3383  3203 PRINT CHECKS                              HC02 3203
 127 SFB3679  STACKER ROLLS TURN CONTINUOUSLY                HC01 3203
 128 SFB3720  3203 GETTING E061 ERRORS                       HC01 3203
 129 SFB3725  DIAGNOSTIC ERRORS RTNS 51 52 61 MOD 5          HC09 3203
 130 SFB3807  3203 INLINE TESTS 68 & 69 FAIL                 HC05 3203
 131 SFB3890  DROP POWER, HANG OR CAN'T POWER UP             HC05 3203
 132 SFB3955  DEVICE ADDRESS PLUGGING /INSTALATION           HC05 3203
 133 SFB4266  INTERMITTENT CHECK LITES                       HC01 3203
 134 SFB4301  3203 WITH BFA2 ERRORS                          HC01 3203
 135 SFB4526  3203 LOOSING PRINT LINE                        HC01 3203
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PAGE 15  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 136 SFB4691  3203 M5 DROPPING POWER                         HC01 3203
 137 SFB4797  PLB PARITY, COIL PROTECT, LIGHT PRINT          HC01 3203
 138 SFB4798   LINE POSITION CARRIAGE MOTION CHECKS          HC01 3203
 139 SFB4932  POWER WILL NOT COME UP ON PRINTER              HC06 3203
 140 SFB5043  BLOCK DATA CHECK RESETTING ON IPL              HC01 3203
 141 SFB5204  CELIA ADDRESS BFDA                             HC02 3203
 142 SFB5259  FALSE ERRORS DIAGNOSTIC ROUTINE 51 52          HC03 3203
 143 SFB5457  3203 SPURIOUS INTERRUPT NPR431 MOD3            HC07 3203
 144 SFB5494  OPERATOR PANEL LIGHTS FLASH                    HC14 3203
 145 SFB5522  CELIA STOP BF9A +24V DID NOT COME UP           HC01 3203

PAGE 16  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 146 SFB5718  3203 WITH CELIA=8706                          HC01 3203
 147 SFB5725  3203 WON'T RUN DIAGNOSTICS                     HC01 3203
 148 SFB5742  3203 GETTING HAMMER CHECKS                     HC01 3203
 149 SFB5767  DATA CHECK PRINT CHECK                         HC01 3203
 150 SFB5796  DISABLE LIGHT WILL NOT GO OUT                  HC02 3203
 151 SFB5813  NO PRINTER POWER CELIA 808E                    HC01 3203
 152 SFB5888  PRINTER HANGS OR WON'T POWER UP                HC02 3203
 153 SFB6057  COIL & HAMMER PROTECT CHECKS                   HC02 3203
 154 SFB6096  POWER WONT STAY UP.                            HC01 3203
 155 SFB6202  3203 DROP POWER INTERMITTENTLY                 HC01 3203

PAGE 17  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 156 SFB6224  CONTROLLER CHECK,TIME OUT                      HC01 3203
 157 SFB6275  3203 TRIPS CB01                                HC01 3203
 158 SFB6337  3203 MOD3 MLM 21-020 ERROR                     HC01 3203
 159 SFB6434  IFCC ON 3203 MOD5                              HC01 3203
 160 SFB7507  UNIT CHECK BUSY AND STATUS MODIFIER            HC03 3203
 161 SFB7895  MAINTENANCE PANEL WON'T WORK                   HC03 3203
 162 SFB7927  DROPS READY                                    HC03 3203
 163 SFB7942  POWER WILL NOT STAY UP ON CONTROLLER           HC05 3203
 164 SFB7958  NO PRINTER POWER CELIA STOP 7FFE               HC01 3203
 165 SFC289   PRINT CHECKS OR COIL PROTECT CHECKS            HC53 3203

* PAGE 18  THIS IS A CONTINUATION OF THE PREVIOUS TITLE PAGE.
 166 SFC1270  3203 SLOW PRINT OR REDUCED SPEED               HC08 3203
 167 SFC3713  IOC 3203 THERMAL ON INSTALLATION               HC02 3203
 168 SFC3862  MOD 4 FEB BOARD PART NUMBER                    HC26 3203
 169 SFW4543  CONTROLLER CHECK                               HC03 3203
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10.0 PM PROCEDURES

PM should be performed during a service code 01 call. Time required to perform PM should be written using service code 08. If your printer has the OCR feature or is a heavy usage printer, you may wish to schedule predictive maintenance to reduce the 01 service calls. The following list of items should be checked on your 01 service calls: (See MLM page 22-010 for normal PM procedures)

1. Visual Checks
   - Belts for wear
   - Cartridge oil pump level
   - Vacuum cleaner operation and bag
   - Train drive for loose parts
2. Vacuum and Clean
   - Hammer unit area
   - Air filters
   - Paper path area
   - Train cartridge area
   - Carriage emitter and transducer
   - Cartridge and cartridge drive area
3. Replace
   - Residuals (when working in hammer unit area)

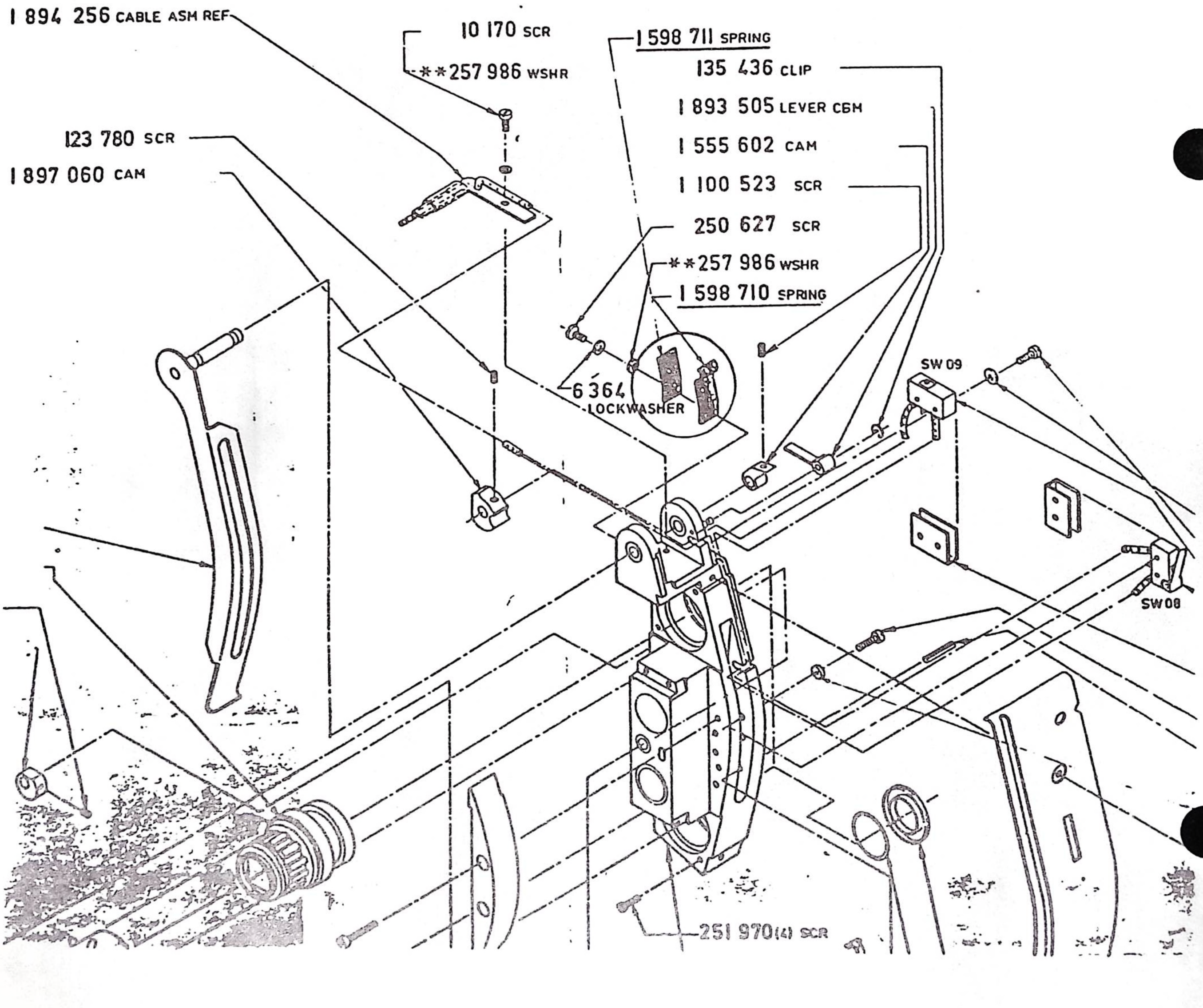
Run ripple print to check print quality and use print quality flowchart in this newsletter if necessary.

11.0 MISCELLANEOUS

Forms Tractors

The Field Tractor Return program has been a success. Field participation was very good. THANKS to those individuals who aided us in providing defective tractors for analysis. Engineering is evaluating the failures and actions are being taken to improve the tractor assemblies.

Tractor flat spring part number 1897074 is no longer available. It is replaced by two flat springs part numbers 1598710 and 1598711 . The new springs reduce the occurrence of intermittent form checks when using multiple part forms. The picture below shows the proper installation of the two springs. Refer to RETAIN 3203 TIP 322 for additional details.



Print Train Drive

We need your assistance in providing worn train drive parts to Engineering for analysis. There has been a high replacement rate of train drive parts. The part numbers affected are: UCS Gear P/N 1894235, UCS Gear Assembly P/N 1894202, Drum Assembly P/N 1894206 and Timing Belt P/N 1894208. Refer to RETAIN 3203 TIP 326 for more information.

Logic Cards

A new Local Channel Adapter card P/N 4760378 is available. This card replaces P/N 5167284 used in 01D-D1-L2 position. P/N 5167284 may cause intermittent and hard to define interface control checks. Refer to RETAIN 3203 TIP 300 for details.

ECA 123 provides ROS microcode level 25 for 3203 model 5 printers that are not at the latest EC microcode level. Refer to RETAIN 3203 TIP 316 for description of problems solved.

EC 756068 provides a new 01A-A1-K5 card to solve lost line of print during stacker check and a printer hang condition during ribbon reverse if start/stop or single cycle key is depressed. Parts will be available with an ECA to be announced 2ND Quarter 1984. Refer to RETAIN 3203 TIP 318 for details.

Ribbon Area

A new ribbon drive hub is available which replaces part number 1555735 . The new ribbon core part number 1598713 has four teeth instead of two on the hub assembly.

An improved ribbon sensor part number 4012098 is available. The old part number 1555476 is no longer used.

A new plastic shield part number 1598709 is available for field use. The new shield has an alternate material and increased thickness. If your customer uses five parts forms are greater, you should continue to use the old shield part number 1555372. Both parts will be available for field replacement. Refer to RETAIN 3203 TIP 321 for more information.

Installation

In August 1983, we began shipment of a green Attention Sheet with all 3203 printers shipped from the Charlotte plant. We requested feedback on installations requiring over seven hours completion time. Feedback has been excellent! We are working with Manufacturing to solve such concerns as loose cards, stacker belts, LEDs, misplugged cards and missing bill of materials. Your continued support is greatly appreciated.

Stackers

Manufacturing is working with the vendor to improve stacker reliability. Several areas of concern are: grease in stacker motor, defective LEDs, loose stacker belts and loose stacker cards.

RPQ S00488 installs beaded chains on the stacker assembly to improve stacking reliability. This is a no charge MES. Refer to RETAIN 3203 TIP 233 for more information.

Maintenance Manuals

We are working with Development Engineering to determine the feasibility of updating the maintenance documentation.

Special Tools

The special tools required to service the 3203 printers are part of Feature Specify Code 9190 requested by the Sales Representative when a machine is ordered. No tools are sent if not requested by Sales. Service personnel should provide input to Sales to ensure the tools are requested if needed. Refer to IBM Sales Manual for more information.

Some adjustments on the 3203 require the use of punch cards, for example: Replacement of the Plastic Shield MLM Page 10-080. In cardless computer accounts this may present a problem. If punch cards are not available, stiff paper can be used as a substitute.

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WE NEED YOUR HELP!!!!

We are trying to improve the effectiveness of the 3203 Maintenance Package. To gather more timely feedback, we have included a Problem Sheet for your use.

Please use these sheets to identify problems you feel need attention. If requested, we will provide an answer to the status of your concern.

We hope you will find this Print Quality Service Aid to be a useful tool.

Any information you can contribute to help accomplish this, will be appreciated. If you feel you have information which should be included in future publications, write to us and share your thoughts.

Please be specific as possible and send your communications to the address provided below.

Internal Mail:

3203 SPR
Dept. 07H
Bldg. 672
Charlotte, NC

External Mail:

IBM Corporation
Dept. 07H/Bldg. 672
1001 WT Harris Blvd.
Charlotte, NC 28257

Attn: 3203 SPR

3203 PROBLEM SHEET

NAME:_________________________REG:____B/O:_____DATE:___/___/___

TIE-LINE:___________________DISPATCH LOCATION:_________________

IF PROBLEM IS HARDWARE:

MACHINE SERIAL #______________ROS MICROCODE LEVEL:D2_____/F2_____

CELIA ADDRESS/ERROR STOP:____________________EXT:________________

IF PROBLEM IS DOCUMENTATION:

NAME OF DOCUMENT:____

EC LEVEL:____________P/N OR B/M #_________________PAGE #_________

DESCRIPTION OF PROBLEM:____
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____
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____
____

Please attach any supporting documentation.

DO YOU WISH TO RECEIVE AN ANSWER TO THIS CONCERN: YES_____NO_____

MAIL TO: IBM CORPORATION
DEPT. 07H/BLDG. 672
1001 WT HARRIS BLVD.
CHARLOTTE, NC 28257
ATTN: 3203 SFR

3203 PROBLEM SHEET

NAME:_________________________REG:____B/O:_____DATE:___/___/___

TIE-LINE:___________________DISPATCH LOCATION__________________

IF PROBLEM IS HARDWARE:

MACHINE SERIAL #______________ROS MICROCODE LEVEL:D2_____/F2_____

CELIA ADDRESS/ERROR STOP:____________________EXT:_______________

IF PROBLEM IS DOCUMENTATION:

NAME OF DOCUMENT:____

EC LEVEL:____________P/N OR B/M #_________________PAGE #_________

DESCRIPTION OF PROBLEM:____

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Please attach any supporting documentation.

DO YOU WISH TO RECEIVE AN ANSWER TO THIS CONCERN: YES_____NO_____

MAIL TO:

IBM CORPORATION
DEPT. 07H/BLDG. 672
1001 WT HARRIS BLVD.
CHARLOTTE, NC 28257
ATTN: 3203 SPR

Bart Amundson
Rowell Labs
218-634-1866

Baudette

Don Dybvad
Glenn Eichman

Jan 36

Text Management

option Merg Data to Mass Mail

Sort Zip only 1st Number

2:22 Tue SBS